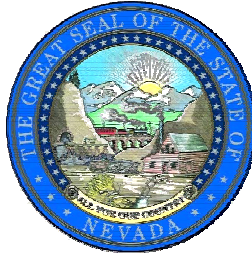


State of Nevada Division of Forestry



State Fire Program Review



TriData

A Division of SYSTEM PLANNING CORPORATION



NEVADA DIVISION OF FORESTRY

State Fire Program Review

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TABLE OF CONTENTS

ACKNOWLEDGMENTS	IV
EXECUTIVE SUMMARY	VIII
Methodology	viii
Key Findings and Recommendations	viii
Vision for the Future	xiv
I. INTRODUCTION	1
Scope	1
Methodology	2
Organization of the Report	2
II. NDF OPERATING ENVIRONMENT	4
Overview	4
Counties, Districts, and Regions	7
Wildland Vegetation and Health	10
Urban/Wildland Interface Build-up	12
Population	13
Private Industry and Economy	14
Mission and Responsibilities	17
Funding Sources	19
Wildland Fire Experience	21
III. ELEMENTS OF A FIRE MANAGEMENT PROGRAM	28
Overview	28
Wildland Fire Management Strategies	30
Elements of Fire Protection	31
Sources	36
IV. INTERAGENCY ROLES AND RESPONSIBILITIES	37
Federal Responsibilities	37
State Responsibilities	43
County Responsibilities	50
Interagency Cooperation and Organizations	53
V. NDF REGIONS – OBSERVATIONS AND ISSUES	61
Northern Region	61
Western Region	69
Southern Region	71
VI. STAKEHOLDERS' VIEWS AND CONCERNS	76
Views of Federal Cooperators	77
Views of Other State Agencies	81
Views of Local Fire Protection Districts	82

Views of County Officials	89
Views of Non-Governmental Organization Cooperators	90
Views of NDF Employees	92
VII. FIRE PREVENTION AND MITIGATION	96
National View	96
State Programs	97
Federal Programs	104
Non-Agency Programs	105
Counties	106
Recommendations for the Future.....	106
Sources.....	108
VIII. PRE-SUPPRESSION, DISPATCHING, AND SUPPORT	109
Equipment and Stations	109
Logistical Support.....	111
Dispatching	112
Communications System	113
Air Operations.....	115
Inmate and Youth Crews	118
Training and Qualifications	121
Sources.....	129
IX. FIRE SUPPRESSION AND FIRST RESPONDER ROLES.....	130
Constraints	130
Fire Response Goals	131
Resource Allocation.....	132
Engine Staffing	135
Contracting for Fire Suppression.....	136
Cost of Firefighting.....	138
All-Risk Management.....	139
Firefighter Safety	142
Sources:.....	144
X. REVENUE AND BUDGETS	145
Fire Program Funding	145
Budget System	145
State General Fund.....	147
Federal Funds.....	148
County Funds.....	150
Regional Variation.....	152
Suppression Collections and Costs.....	154
Other Funding Notes.....	154
Comparison of Nevada vs. Other States Wildland Organizations.....	156
Cost of Future Budget: Recommendations	160

XI. ORGANIZATIONAL STRATEGY FOR THE FUTURE	162
Summary of Current Mission	162
Regaining Focus	165
Alternative Organizations for the Future	166
Recommended Strategy	172
XII. REPORT RECOMMENDATIONS	176

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EXECUTIVE SUMMARY

The Nevada Division of Forestry (NDF) fire program has been at a crossroads in deciding its future direction. To aid in the planning, the state engaged TriData, a division of System Planning Corporation, of Arlington, Virginia, to provide an objective, third party study of the status of the program, with input from its various stakeholders. The study also provides options for the future. TriData had undertaken a similar study for the State of Washington fire program. The study was undertaken for the most part in the second half of 2003. The findings and some key recommendations are summarized below.

Methodology

TriData staff met with NDF headquarters staff and multiple representatives of each major cooperator group, including federal agencies (BLM and the Forest Service); other Nevada state agencies (including the Division of Emergency Management, State Fire Marshal, and Department of Corrections), field offices of NDF, local fire departments, local government officials across the state, and major non-governmental organizations like the Nevada Fire Safe Council and the University of Nevada–Reno Cooperative Extension Program.

The project team reviewed a variety of regulations and ordinances empowering NDF. We reviewed fire data and budget data. We toured a number of the areas in the state to get a first-hand feel for the wildland risks and the local environments. We brought comparative information from a study previously undertaken for the state of Washington but also surveyed other western states, and updated some of that information by contacts to other western states. This study was constrained by time and financial resources, but attempted to get an accurate view of the current status of NDF programs, and the concerns of state officials and the many NDF stakeholders.

Key Findings and Recommendations

The key findings and recommendations of the report are summarized below.

Nevada's Fire Environment – Flammable, fire-prone vegetation dominates much of Nevada's landscape. Like other western states, Nevada has experienced a dramatic escalation of wildland fires in recent years. Fire also represents a natural disturbance that, as a part of the biological order of things, plays an important role in regulating ecological cycles in native vegetation across Nevada's arid landscape and its mountain forests.

However, wildfires are becoming more numerous, larger and more severe, and residential subdivisions are proliferating in fire-prone areas of Nevada. Consequently, the risk of catastrophic private property damage from wildfires is soaring.

The growing number of fires and their intensity trouble resource managers in Nevada. They are appropriately concerned about cumulative, long-term damage to biological resources and environmental quality, especially damage to Nevada's essential watersheds and the loss of critical wildlife habitat.

The Nevada Division of Forestry – Under its legislative mandates, the Nevada Division of Forestry (NDF) coordinates and manages forestry, nursery, endangered plant species, and watershed resource activities on private lands and some public lands in the state. Within that broad mission is protecting life, property, and natural resources through an organized system for preventing, detecting, and suppressing wildfire on forest and rangelands.

By protecting state and private lands not protected by federal agencies and not within incorporated cities, the NDF provides a critical service to Nevadans. However, NDF has had to do this with a much smaller fire program than its federal counterparts in the state. The fire program is also smaller than that of state forestry and natural resource agencies in other western states.

In today's operating setting, interagency partnerships are an essential element of a comprehensive fire management program. Despite its small size, the NDF plays a vital role in Nevada's interagency system.

A COMPLEX AND CHALLENGING MISSION: In light of its complex mission, the NDF is stretched thin, and appears to be chronically under-funded and understaffed in key areas of the state. Consequently, the Division struggles to meet the needs of its constituents, cooperating agencies, and its own employees as it strives to accomplish its mission in an environment complicated by many factors. Most notably, the NDF is significantly impeded from carrying out its responsibilities by six key challenges, which are outlined below.

1. An Archaic Mechanism for Establishing Jurisdiction and Funding Operations

The current mechanism by which NDF establishes jurisdiction and is funded, fire protection districts established under Nevada Revised Statute 473 (NRS 473), is not

meeting current needs of the NDF and its stakeholders, let alone future needs. Ad valorem taxing mechanisms at the heart of NRS 473 present the NDF with three serious dilemmas:

- There is extreme variation in funding levels from district to district and, consequently, it is difficult to achieve a cohesive program.
- Rural counties have limited tax bases that cannot generate sufficient revenue to fund a credible fire program.
- NRS 473 produces the unintended consequence of putting NDF in direct competition and conflict with the local government agencies with whom they are expected to cooperate.

Eight fire protection districts organized under NRS 473 in eight counties make up the NDF fire suppression jurisdiction. So, much of the Division's funding comes from counties, and must be used to deliver services within the county, not for other purposes. Consequently, there are great disparities in funding of the NDF program across the state, which injects a major complication into the Division's operating environment.

The fire program is severely under-funded in some areas and adequate in others. Thus the NDF fire program looks considerably different in each locality, not by design, but driven by the level of revenue a given county can generate from its fire protection district. These circumstances significantly obstruct the Division's ability to lead and manage a comprehensive, systematic fire protection system. Unlike forestry agencies in other states, and because it is significantly funded by local taxes, the NDF lacks as much flexibility as it really needs, to reallocate resources to respond to fire conditions or to meet the needs of the state because of the constraints imposed by the local funding.

2. A Multi-Faceted, Partly Ambiguous Mission

The Division carries out a multifaceted fire management mission in a complex interagency environment. The Division simultaneously:

- Directly delivers wildland fire protection with NDF career resources and through cooperating volunteer fire departments;
- Provides varying levels of structure fire protection, emergency medical service, rescue, and hazardous materials response in four of its eight districts;

- Provides the critical interface between local governments and the federal government for all matters pertaining to wildland and wildland-urban interface fire protection;
- Administers, in cooperation with the Nevada Department of Prisons, 10 Conservation Honor Camps, providing for the training and use of inmates assigned to conservation camps in conservation work and as a primary source of fire crews for all wildland fire agencies operating in Nevada;
- Serves as the Governor's Authorized Representative (GAR) to the Federal Emergency Management Agency (FEMA,) effectively performing as the gatekeeper to federal fire assistance and certification of claims for fire management assistance;
- Supports local government by paying all-risk incident response costs, including fire suppression, in eight Nevada counties and, from time-to-time, bears the cost of mutual aid, mobilization and other large fire support to non-NDF districted counties, without legislative funding to pay for this emergency response.
- Prevents fires and mitigates fire hazards on private lands, through fuel treatment and outreach education;
- Has taken on the emergent issue of a comprehensive strategy for mobilizing fire department resources regionally, statewide and interstate;

It is the evolution of this mission that presents the NDF management with its greatest challenges. Over a period of decades, the NDF fire management mission has changed in response to a mixture of needs perceived both within the organization and by external stakeholders. Positively, the NDF has tailored its program to the various, changing needs across the state. On the other hand, the NDF fire program appears to result as much from incremental additions to the mission (mission creep) as from a comprehensive, systematic strategy.

Federal and local NDF cooperators find the Division's fire program mission vague. Some view the NDF mandate and "legitimate" role in NRS 473 districts as unclear. Others believe that revenue, rather than strategy, drives the NDF mission. All believe that NDF needs to clarify its mission, develop an organizational vision, and plan around those elements.

3. *A Non-Wildfire Element to the Mission*

The NDF fire management mission, which has evolved in response to a variety of needs, now devotes a substantial amount of resources to all-risk emergency services, including structure fire response, emergency medical services, and hazardous materials response. Varying levels of emergency service range from directly providing local services from three 24-hour, career fire/EMS stations in the Sierra Forest Fire Protection District, to coordination of volunteer fire departments in the White Pine County Fire Protection District.

The evolution into all-risk emergency service has contributed to a lack of clarity about the NDF mission, both internally and externally. In places, Division involvement in all-risk emergency service creates overlapping and duplicated efforts. In addition, the all-risk emergency service portion of the NDF mission tends to dilute the agency's core mission of protecting natural resources and property from wildfire.

The Division's federal cooperators believe that NDF is "off-mission" in providing all-risk emergency services. These cooperating agencies believe that by transitioning out of the all-risk emergency service portion of their mission, NDF would better align itself with its cooperators. Fire chiefs in the NDF Western and Southern Regions also would prefer that the Division devolve its non-wildfire responsibilities to local government.

The NDF has come to an inevitable strategic turning point in regard to all-risk emergency services in the urbanizing Sierra Forest Fire Protection District, and is nearing that same decision point in the Mount Charleston Fire Protection District. The Division regards provision of non-wildfire emergency services as a transitional role. In the Sierra Forest and Mount Charleston districts, well-developed fire departments capable of providing service exist and are ready for the transition.

4. *A Lack of Strategic Direction*

The NDF leadership itself perceives a degree of disarray if not chaos in the NDF fire protection program when viewed from a statewide perspective. The Division's three Regions each face similar resource management and fire protection issues, but have at least three different approaches to carrying out the NDF fire management mission. NDF fire districts vary greatly in size, population, economic development, county resources, local fire department capabilities, and political climate.

Given this dramatic variation, the Division's fire protection districts function in some ways as if they were eight unique fire programs. Many of the Division's cooperators believe that this variety of approaches leads to an unclearly defined fire protection system. Consequently, they believe that the NDF needs to clarify its mission and establish a statewide, strategic fire plan integrated with its natural resource objectives, and that it should have an organizational structure able to produce a consistent, comprehensive fire protection system across the state.

In short, the NDF fire program needs to regain focus. The state has given the NDF responsibility for supervising and coordinating all forestry and watershed work on state and privately owned lands in Nevada, including fire control. There also exists a compelling state interest to protect watersheds, critical wildlife habitat, parks, and other economically important lands. For these reasons, the NDF would do well to concentrate on the legislatively mandated portion of its mission.

The Division needs to plan strategically to establish a coherent and comprehensive fire protection system, using an inclusive and collaborative process that involves the NDF's employees, cooperators, and other stakeholders. The NDF strategy should establish a clear and positive vision and direction for the NDF fire program, consistent with the Division's mission. It should include specific, measurable goals.

5. *A Lack of Analysis*

NDF carries out a complicated mission in a complex interagency environment. The operating environment is made more difficult by the previously noted obsolete mechanism for establishing the Division's jurisdiction and funding its operations; and by an unconventional "all-risk" element to its mission. In addition, it is difficult to gain a statewide perspective of the fire problem on Nevada's state and private lands and on the Division's fiscal needs. This is in part because the NDF collects little data on its performance and lacks a level of analysis necessary to know where in the state the Division's services are most needed, at what level the NDF might provide service, what those services would cost, and how they should be funded. Consequently, many of the recommendations made in this report remain at the strategic level, requiring further analysis and detailed planning by the agency to provide the level of specificity necessary to make staffing and funding decisions.

6. *Employee Morale*

The NDF benefits from a staff of capable and dedicated employees. However, it also faces an employee morale dilemma that will impact the ability of the management to effectively carry the agency and its organizational strategy forward. Some employee morale issues are directly related to the issues noted above, while others are related to inadequate communication between management and employees.

The Division's communication issues and strategic issues are closely coupled. NDF employees lack a clear and unifying organizational vision for the fire management program, and want to understand what is happening in several strategic areas. Most prevalent are concerns over the future of the NDF fire mission and the future of its all-risk emergency services. This report recommends that the NDF address its employee morale issues by taking the following four key actions:

- Establish a formal human resources function in the NDF, retaining a qualified, professional human resource manager and implementing a comprehensive human resource management system.
- Contract to develop and implement an aggressive supervisory and leadership training curriculum in the NDF.
- Undertake immediate efforts to open better lines of communication between the NDF State Office and its field personnel.
- Develop a communications plan for NDF that focuses on getting information to various stakeholders and cooperators to avoid misunderstandings and ill will caused by lack of information or misinformation.

Vision for the Future

This report makes 91 specific recommendations that address nearly all the elements of the NDF fire management program. In the final analysis, we believe that the NDF would better serve the state if it could implement its authorities relating to wildland fire on all state and private lands in Nevada not protected by federal agencies or lying within incorporated cities. This model envisions the NDF as a wildland fire management agency implementing a comprehensive fire protection system on a statewide basis. Fulfilling this vision would require a fundamental change in the funding system, a substantial budget increase, and new mechanisms for establishing NDF jurisdiction.

To implement this model the state legislature would replace or amend NRS 473 with legislation authorizing and funding the NDF to provide statewide protection of private lands outside municipalities, other established fire protection districts, or federal jurisdiction. Forest fire protection districts would remain separate from county fire protection districts formed primarily to protect structures or to provide emergency medical service or other emergency services. The State of Nevada might achieve this aim by establishing a single, statewide forest fire protection district or separate districts by county. Also under this model, the NDF would pursue a block exchange program with the BLM or the Forest Service or both to exchange fire protection jurisdiction on specific lands with the intent of ‘blocking-up’ the jurisdiction into logical units.

The Division would continue its transitional all-risk emergency service role in Clark, Elko, Eureka, and White Pine Counties, but withdraw from all-risk emergency service functions in Carson City and Douglas, Storey and Washoe Counties. The NDF would also plan for the inevitable sun setting of its non-wildfire role in Clark County and for transitioning out of it as well.

Under this model, the Division would carry out its wildland fire responsibilities with a robust but largely seasonal workforce, augmented by the conservation camps, NDF helicopters, and bulldozers supported by adequate full-time staff to lead and administer the program effectively and supervise its field activities.

The legislature would fund the fire protection system from the State General Fund or by a statewide assessment of fees, as has been done in other western states, or in some manner that would assure more stable support for the compelling public function performed by the NDF. To achieve the envisioned comprehensive fire management system, the NDF, along with its federal cooperators, would employ the National Fire Management Analysis System (NFMAS) to determine the Division’s most efficient operating level in its existing NRS 473 Districts and in each additional county or district requiring NDF protection.

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NDF provides a vital service to Nevadans. It needs to change direction in its enabling legislation and funding mechanisms, and obtain substantial improvement in its resources—a larger budget—if it is to satisfactorily accomplish its mission. It merits the leadership and support of the Nevada State Legislature to accomplish these changes.

I. INTRODUCTION

The State of Nevada in early 2003 requested a comprehensive review of its state fire program. The program is a responsibility of the NDF, which is within the Department of Conservation and Natural Resources (DCNR). TriData, a division of System Planning Corporation of Arlington, Virginia, was competitively selected to conduct the review. TriData had conducted a similar review for the State of Washington. This report summarizes the findings and recommendations of the review.

Scope

The RFP for this study stated that the program review was:

to comprehensively examine the NDF fire program, to include a review of the agency's fire prevention and firefighting capabilities, ...statutory responsibilities, nature of the fire problem throughout the state, {and} fire trends in Nevada.

Ideas were to be considered from practices and organizations in other states in the West, and from federal agencies, NDF staff, and local firefighting organizations. Opinions were to be sought from various stakeholders, including the private sector.

The current fire program budget level and funding sources were to be reviewed, with recommendation on appropriate budget levels and sources of revenues.

Topics to be included in the review were as follows:

- Nevada wildland and fire environment
- Assessment of current NDF Fire Program
- Trends affecting the NDF program
- NDF roles and responsibilities in interagency wildland fire cooperation
- Fire prevention and mitigation
- Range and forest health
- Pre-suppression
- Fire suppression
- Fire rehabilitation

- Impacts of fire on the future of the state economy
- Stakeholders views and concerns
- Funding and budget alternatives

One of the early steps in the study was to review these topics with NDF, and prioritize them. Some topics merited an entire chapter, while others are incorporated within chapters. Additional topics were added as required.

Methodology

The project started with a kickoff conference call followed by a visit by the project manager and deputy project manager (Phil Schaenman and Michael DeGrosky). The initial visit was to get up to speed on the vision for the project, and to hold an initial series of interviews with state, federal, and private sector officials. At the end of this intense start-up, the project team met with the project manager for the NDF (Pete Cannizzaro) to triage the issues, identifying which were to get the most emphasis within the project's limited resources.

Subsequent to the triage, two major "tours" were made to the Division's field Regions to get the views of NDF personnel and other stakeholders. As reflected in the acknowledgements, these stakeholders included volunteer and career fire chiefs, county officials, and field office personnel of the NDF and their federal cooperators. These trips also allowed the consulting team to view Nevada's geography, communities, and fire conditions—the operating environment for NDF.

Throughout the project we received numerous documents relating to the fire program, statistics, and the Division's legal mandates. However, a lack of data about the NDF program and budget was a significant problem in undertaking the study, as will be discussed in various chapters. One of the findings is that NDF needs to improve the data available to its management.

NDF officials reviewed the draft report before submitting the final report.

Organization of the Report

The NDF role is complex, and this complexity made the conduct of this review and the organization of this report more difficult than usual. Consequently, some information overlaps chapters to maintain coherence throughout the report. For example, the chapter

on stakeholder opinions and concerns summarizes stakeholder input by stakeholder grouping, but much of this information is used in other chapters as well. Hopefully the report strikes a reasonable balance between clarity within a chapter, and redundancy across chapters.

The report begins by describing the operating environment within which NDF works (Chapter II), and the elements of a state fire program (Chapter III). Chapter IV discusses the interagency environment and roles of various agencies. The NDF Regional organization and issues pertinent to each Region are discussed in Chapter V.

Chapter VI summarizes the opinions and ideas about the state fire program of each group of stakeholders.

Following this section is a series of chapters on prevention, pre-suppression, and suppression (VII, VIII, and IX), the major elements of the NDF fire program.

The last part of the report deals with revenues and funding (Chapter X) and strategies for the future (Chapter XI).

Recommendations are made throughout the report as specific issues are raised. Options for a strategy for the future are summarized in the strategy chapter. A list of all of the recommendations contained in the report along with a partial costing of them is included in a final chapter (XII).

II. NDF OPERATING ENVIRONMENT

Before discussing the NDF fire program in detail, it is important to understand the environment in which the Division operates, how complicated it has become, and it is changing. Many topics introduced here are further developed in later chapters.

Overview

NDF carries out responsibilities that have been mandated or authorized by Nevada law. It is important to understand that NDF strives to accomplish its mission in an environment complicated by many factors.

The state's geography, vegetation, and landownership make for a complex fire management mission. Much of Nevada's landscape is dominated by flammable, fire-prone vegetation, and like other western states, Nevada has faced a dramatic escalation of wildland fire impacts in recent years. However, fire also represents a natural disturbance that, as a part of the natural order of things, plays an important role in the regulating ecological cycles in the native vegetation across Nevada's arid landscape and in its mountain forests.

The Nevada landscape is diverse, including sandy deserts; grassy valleys; rugged mountains; forests, rangeland, farm and ranch land; suburban and urban environments and wilderness. NDF must be prepared to provide effective fire protection in all these settings.

At the same time that wildfires are becoming more numerous, larger and more severe, residential subdivisions are proliferating in fire-prone areas of Nevada. Consequently, the risk of catastrophic private property damage in Nevada is soaring.

While the natural environment and urbanization are challenging, what complicates the NDF mission even more are social and political factors. Over time, the NDF fire management mission has evolved in response to a variety of needs perceived by the organization and its constituents. Addressing those needs while maintaining a unified, systematic approach presents a challenge for NDF managers. In addition, the mechanism by which NDF establishes jurisdiction and is funded produces extreme variation in funding levels from district to district, and, consequently, the Division must work doubly hard to maintain a cohesive program.

The Division operates in a largely interagency environment. Interagency partnerships are considered essential in today's operating environment and are an expectation of modern fire agencies. While these cooperative partnerships ultimately serve the cooperating agencies and the public well, they add complexity to NDF operations.

Finally, NDF is a relatively small and multi-disciplinary organization that is stretched thin, and is chronically under-funded and understaffed in key areas of the state.

Geography – Outside of urban and suburban developed lands, Nevada is mostly rugged and arid. The state is located almost entirely within the Great Basin, a desert area reaching into six states. Nevada can be divided into three main land Regions; the Columbia Plateau, the Sierra Nevada, and the Basin and Range Region.

In the northeastern corner of Nevada, the land is supported by lava bedrock. Rivers and streams have cut deeply into the bedrock, leaving deep canyons with steep ridges. Near the Idaho border, the land turns to open prairie. This is part of the Columbia Plateau.

The Sierra Nevada is the rugged mountain range that cuts across the portion of Nevada south of Carson City. Lake Tahoe, a glacial lake on the California-Nevada border, lies in one of the valleys of the Sierra Nevada.

The rest of the state is part of the Basin and Range Region, which is divided by more than 150 mountain ranges running from north to south. The Region is bordered on the west by the Sierra Nevada. Scattered between all the ranges are buttes, mesas, flat valleys, lakes, and alkali flats.

Boundary Peak is the state's highest point at 13,140 feet above sea level. The lowest point is 479 feet above sea level on the Colorado River at the southern end of the state. The mean elevation for the state is 5,500 feet above sea level. This high elevation affects the types of vegetation, moisture, and aircraft performance—all of which affect the fire problem.

Climate – Nevada's climate ranges from hot and arid to sub-freezing. The highest temperature recorded was 125 degrees F (June 29, 1994, in Clark County). The lowest temperature was -50 degrees F (January 8, 1937, at San Jacinto). Monthly average temperatures range from 104.5 degrees to 19.5 degrees. Nevada is the most arid state, with average annual precipitation of only nine inches, though precipitation varies from

three inches per year in the Mojave Desert to more than 40 inches in the Sierra Nevada Mountains.¹

Water – Water is one of Nevada’s most prized resources. It is essential to the state’s economic future and its citizens’ quality of life. According to the DCNR, surface water is limited and essentially fully committed. Surface water accounts for 72 percent of the residential, commercial, industrial, and public water used in Nevada. The Truckee and Colorado Rivers provide drinking water for 85 percent of Nevada’s residents.

Twenty-eight percent of the state’s municipal and industrial water needs are met with groundwater. In Nevada’s fastest growing counties, developers must purchase or obtain a permit to transfer water rights.²

Ground water resources are reaching full commitment in the Southern and Western Regions. According to the DCNR, groundwater provides 40 percent of Nevada’s total water supply, and represents the sole water supply source in some Regions.

Watersheds can be significantly affected by fires and the loss of cover on the land. The DCNR Resource Status Report states that “Water is Nevada’s most precious resource and more than any other will determine Nevada’s future.” Extensive wildfires can damage critical watersheds, increasing surface runoff and degrading groundwater recharge conditions.

Area – The state covers about 71 million acres, making it the seventh largest state. The federal government controls about 86 percent of the land, a greater portion than in any other state. The federal government owns and manages at least 50 percent of the land in all but two counties, and 90 percent or more in five counties. The Bureau of Land Management represents, by far, Nevada’s largest federal landowner, with over 48 million acres under its management.

The State of Nevada itself owns about 274,000 acres, including nearly 240,000 acres of state parks, open space, wildlife habitat, and sovereign lands such as river channels, lake bottoms, and shoreline.

There are approximately 8 million acres of private land in Nevada.³

¹ This and most other information in the geography section come from the internet site STATE.COM, 2003.

² NDCNR, 2002.

Counties, Districts, and Regions

Nevada has 17 counties: They are grouped into three Regions as tabulated below and as shown in different colors in Figure 1. Figure 1 also shows the state fire protection districts (zones) and wildland fire protection districts.

Western Region	Northern Region	Southern Region
Washoe	Humboldt	Nye
Storey	Elko	Esmeralda
Carson	Lander	Lincoln
Douglas	Eureka	Clark
Lyon	White Pine	
Pershing		
Churchill		
Mineral		

Figure 2 shows the state fire protection districts and wildland fire protection districts, which are discussed later. While generally following county boundaries, some counties are split by the zones. The various overlapping groupings for different administrative and operational purposes add to the complexity of the operating environment.

³ NDCNR, 2002

Figure 1: NV Cooperative Fire Protection Zones

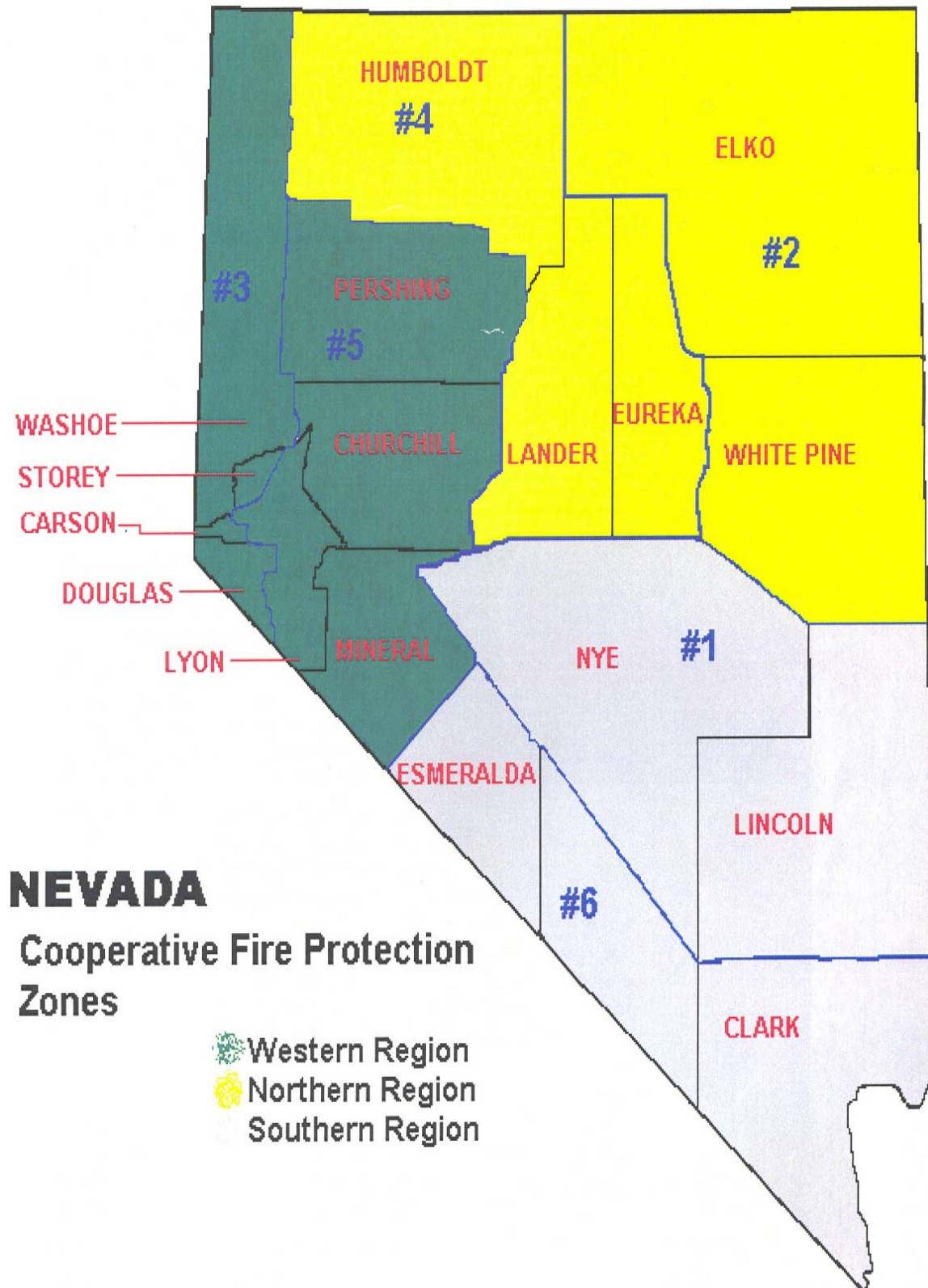
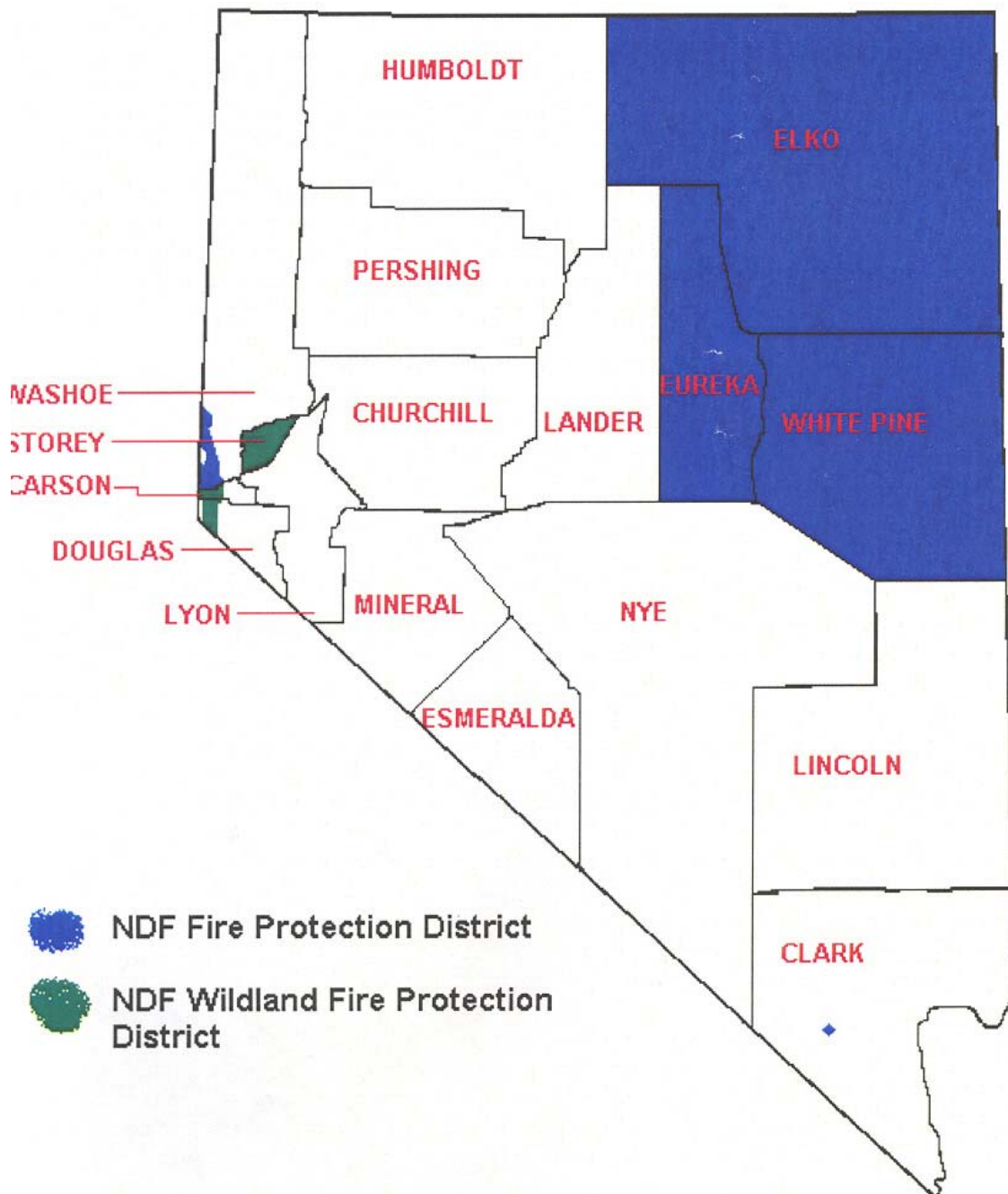


Figure 2: NV Fire Protection Districts



Eight Districts Under NDF Directly (NRS 473 Districts)

Wildland Vegetation and Health

Much of Nevada's landscape is dominated by flammable, fire-prone vegetation including vast areas of sagebrush, a mix of sagebrush and grass, and pinyon-juniper woodlands. Conifer forests cover extensive areas of Nevada's mountain ranges.

Like other western states, Nevada has experienced a dramatic escalation of wildland fires in recent years. According to the Natural Resources Status Report published by the DCNR, 3,600 fires burned approximately 3.25 million acres between 1999 and 2001. The growing number of fires, their intensity and behavior trouble resource managers in Nevada. Their concerns are centered on cumulative, long-term damage to biological resources and environmental quality, especially damage to Nevada's essential watersheds and the loss of critical wildlife habitat.

Unwanted fires damage and destroy commercially and aesthetically valuable forests and rangelands; kill and disperse livestock; threaten lives, homes and property; and destroy fences, water developments, and community infrastructure.

Wildfires, combined with invasions of non-native plants, have contributed to the loss of millions of acres of native vegetative habitat in recent years, according to the DCNR. In addition, the Nevada Department of Wildlife estimates that in a single fire season (1999), 340,000 acres of deer winter range and nearly 145,000 acres of Sage Grouse habitat were destroyed. In the context of other pressures, habitat loss on this scale could lead to listing the Sage Grouse as an endangered species and to a dramatic decline of the economically and biologically important deer populations.

The escalating fire problem results from a complex interaction of factors, including historic fire exclusion, the introduction of fire-prone non-native vegetation, spreading urban development, and declining forest health.

For nearly 50 years, state and federal resource management agencies have strived to exclude fire from Nevada's landscape through aggressive fire control, as was the practice nationally. However, fire also represents a natural disturbance that plays an important role in regulating ecological cycles in native vegetation across Nevada's arid landscape and in its mountain forests. Ironically, this very practice of fire exclusion has dramatically altered the fire environment and contributed to conditions that have allowed recent abnormally large and excessively destructive fires. On Nevada's rangelands and

woodlands, 50 years of aggressive fire suppression encouraged overcrowding of less fire-adapted shrub species and the accumulation of dead fuels. The history of aggressive fire prevention is also, in part, responsible for overcrowded, fire-prone conditions and accumulated fuels in the state's conifer forests.

Land management practices have preconditioned rangeland and forest for extreme wildland fire by extensively modifying natural fire-adapted plant communities. Most notably, shrub communities have increased in density, and fire-prone non-native grasses such as Cheatgrass and Red Brome have spread extensively.

For example, according to the University of Nevada – Reno (UNR) Cooperative Extension Service, “much of the Great Basin has large expanses of sagebrush where shrub cover is so dominant that “herbaceous species are almost absent, with only sparse populations of remnant native grasses and forbs.”⁴

Cheatgrass represents Nevada's most widespread invasive plant. According to the Nevada Weed Action Committee, it covers 9 million acres in Nevada, nearly 13 percent of the state. Cheatgrass presents two wildland fire problems. First, Cheatgrass and other non-native grasses are a highly flammable wildland fuel present in abundant quantities. In many parts of the state, Cheatgrass exists in quantities exceeding 6,000 pounds per acre. Second, repeated wildfires have facilitated the further spread and establishment of Cheatgrass, which reduces the amount of native plant communities that are more fire-adapted; it degrades biodiversity. When sagebrush plant communities burn, invasive species, such as Cheatgrass, are able to get established.

Fire exclusion combined with past harvesting practices and recent discontinuation of timber harvesting has also created overcrowded and fire-prone conditions in the state's forestlands and woodlands. For example, in the Tahoe Basin, pine and fir stands are overstocked due to declining forest harvest and the exclusion of fire. Because of the region's long-term drought, insects and disease have increased.

Pinyon pine and juniper species and woodlands are expanding in Nevada because of aggressive fire suppression and deteriorating range conditions. The pinyon-juniper forests are becoming more dense, which increase the risk of catastrophic wildfires over seven

⁴ University of Nevada- Reno Cooperative Extension Fact Sheet FS-03-66 Habitat Management for Sagebrush-Associated Wildlife Species. J. Kent McAdoo, Area Natural Resources Specialist, Brad W. Schultz, Humboldt County Extension Educator, Sherman R. Swanson, State Range Specialist. Retrieved April 26, 2004 from www.unce.unr.edu/publications/FS03/FS0366.pdf

million acres. According to UNR Cooperative Extension, in some portions of the Great Basin, pinyon and juniper have gradually encroached into adjacent sagebrush communities.”⁵ This encroachment results from changes in fire frequency brought on by decades of fire control and grazing that have decreased the frequency of natural fires, which historically kept pinyon and juniper restricted to less fire-prone areas of the Nevada landscape.

Urban/Wildland Interface Build-up

Unfortunately, fire control practices have interrupted the natural role of fire in the same era as people began to intensify their economic use of Nevada’s resources, and more of the growing population moves into the urban/wildland interface. The problem has been building over the last 100 years; it is not new.

The population of Nevada has become highly urbanized. Most of the state’s citizens live within a few cities or metropolitan Regions, including the Clark, Douglas, Lyon, southern Nye, Storey and Washoe county-urban areas, and Carson City. Significant population growth is predicted for Lincoln County in the future. Urban sprawl in these areas has expanded what is known as the urban/wildland interface, spreading rural communities throughout valleys and mountains. Seven rural counties grew by 25 percent or more during the 1990-2000 period. Urban/wildland interface growth has been greatest on the Sierra Front, in the Lake Tahoe Basin, and around Ely, Elko, Mt. Charleston and the Las Vegas suburbs.

While more subdivisions are being built in fire-prone areas, wildfires are becoming more numerous and severe. Consequently, the risk of catastrophic private property damage in Nevada is soaring.

Fires burning at the urban-wildland interface often extend natural resource and emergency service agencies beyond their means. These fires require specialized firefighting resources and tend to focus attention on lifesaving and protection of property rather than control of the fire. The result can be extensive damage to critical wildlife

⁵ University of Nevada- Reno COOPERATIVE EXTENSION Fact Sheet FS-03-66
HABITAT MANAGEMENT FOR SAGEBRUSH-ASSOCIATED WILDLIFE SPECIES J. Kent McAdoo,
Area Natural Resources Specialist, Brad W. Schultz, Humboldt County Extension Educator, Sherman R.
Swanson, State Range Specialist. Retrieved April 26, 2004 from
www.unce.unr.edu/publications/FS03/FS0366.pdf

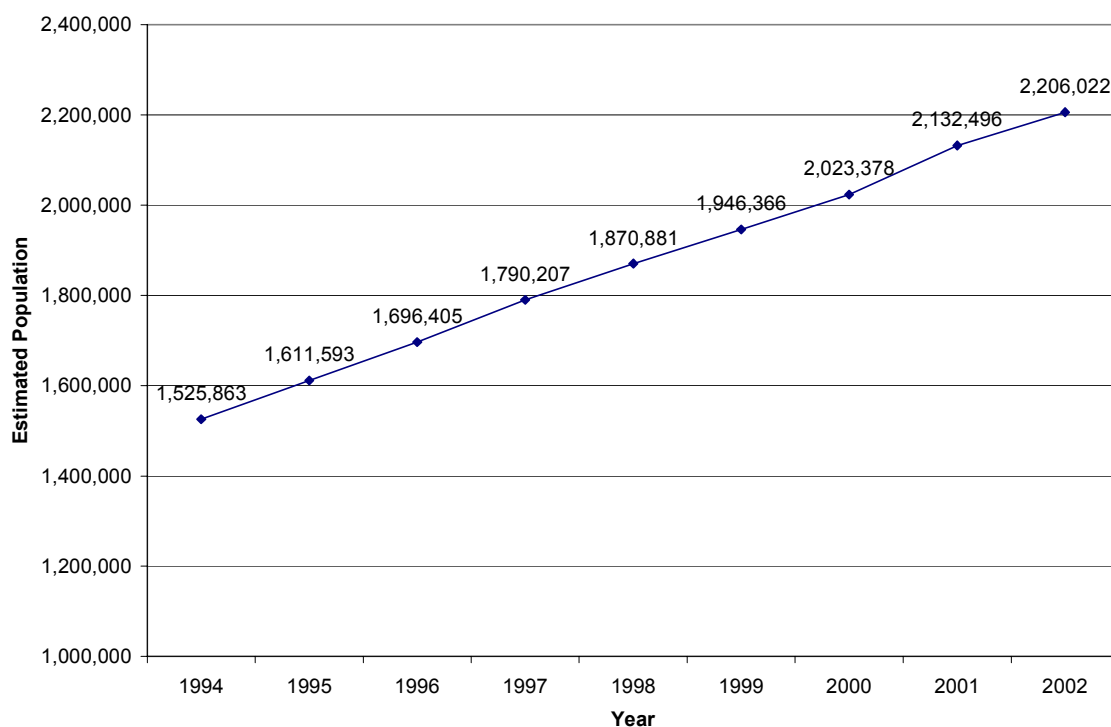
habitat, watersheds, water supplies, cultural resources, and outdoor recreation resources. Fire suppression and rehabilitation costs also add up quickly.

Population

Nevada's population grew by 66 percent between 1990 and 2000, one of the sharpest increases in the nation. The state's dramatic growth is projected to continue by another 32 percent in the next ten years—a doubling of population within two decades.

As shown in Figure 3, the population of the state was estimated at 2,206,000 in 2002, up sharply from 1,526,000 in 1994.

Figure 3: Recent Population Growth



The population is expected to continue its rise, reaching an estimated 2.69 million by 2010 and 2.93 million by 2022.⁶

⁶ Nevada State Demographer's Office, University of Nevada-Reno.
<http://www.nsbdc.org/demographer/pubs/images/projections02.pdf>

Private Industry and Economy

Nevada's economy and work force grew dramatically during the 1990s, along with its population. The service sector accounts for most jobs in the state, about 43 percent of the workforce. Wholesale and retail trade represent the next largest category, followed by government employment, construction, and manufacturing. Warehousing and trucking are also significant industries. In parts of rural Nevada, government employment, mining, and agriculture dominate local economies.

Nevada continues to be the nation's leading producer of gold, silver, and mercury. The mineral industry also extracts oil and gas, diatomite, and other minerals in Nevada. Nevada's manufacturers produce gaming machines and products, aerospace equipment, lawn and garden irrigation devices, and seismic monitoring equipment. Cattle and sheep ranching are important industries in Nevada; much of the land protected by the NDF and its cooperators have value as grazing land and are necessary to the livelihood of many rural Nevadans. Because of Nevada's arid nature and steep slopes, agriculture is not highly developed. However, there are significant agricultural operations to grow hay, other feed for cattle, potatoes, onions, and other crops.

Nevada's economy is overwhelmingly based on tourism, especially the gambling and resort industries centered in Las Vegas and, to a lesser extent, Reno and Lake Tahoe. Gambling taxes represent the primary source of state revenue. Nevada's tourism-based economy has proven vulnerable to swings in the national economy. Recently, hotel, gaming, and recreation employment have grown less than one percent per year. Visitor counts in Reno and Las Vegas have flattened, and the gross gaming win has averaged little growth. State residents expect the overall reduction in gaming activity to linger as long as the economy continues to struggle. The growing number of gaming establishments on tribal lands in California (and growth of gambling in many other states) will likely affect Nevada gaming and the associated tourism revenues. Despite these facts, Nevada's economy remains relatively healthy, but a serious downturn in mining activity and changes in the national economy will continue to affect it ⁷

Legal Mandate – Nevada Revised Statutes (NRS) Chapters 472 and 473 create a complex legal mandate for the NDF. The Division administers and coordinates the fire protection program under authorities vested in the State Forester-Firewarden.

⁷ NDCNR, 2002, infoplease.com, 2003

NRS 472 – NRS 472 establishes the administrative supervision powers and responsibilities of the State Forester-Firewarden position and allows fire protection districts and counties to enter into cooperative agreements with each other. Particularly relevant to this program review, this statute empowers the State Forester to:

- Supervise or coordinate all forestry and watershed work on state and privately owned lands in Nevada, including fire control and working with federal agencies, private associations, counties, towns, cities, and private persons.
- Assist and encourage county or local fire protection districts to create legally constituted fire protection districts where needed, and provide guidance and advice in their operation.
- Administer appropriated funds and awarded grants for fire prevention and control and the education of firefighters. (They also award grants to fire departments and educational institutions in the state.)
- Employ clerical assistance, county and district coordinators, patrol personnel, firefighters, and other employees as needed.
- Administer the budget of the Division of Forestry for fighting fires or assisting during emergencies that threaten human life.
- Enter into cooperative agreements with federal agencies, counties, county fire protection districts, cities, and private landowners to provide for the maintenance of forest and vegetative cover on forest and watershed land, as well as to conserve water and soil and prevent destructive floods.
- Negotiate and enter into agreements with the federal government to ensure cooperation in forest management and protection of forest and watershed areas of Nevada from fire. They also can enter into other agreements with boards of county commissioners, municipalities, organizations, and individuals owning lands, to carry out the terms of federal agreements.

Also relevant to this program review is NRS 472.060, which contains the following key provisions:

- Counties can enter into cooperative agreements with the State Forester, as well as with other counties, organizations, and individuals to prevent and suppress outdoor fires.

- Counties can appropriate and expend funds for wages and expenses incurred in fire prevention and fire suppression, purchase construction materials for the maintenance of forest protection and equipment, and pay other expenses incidental to the protection of forest and other lands from fire. This includes any portion of an office and travel expenses incurred by the Division of Forestry in carrying out the provisions of cooperative agreements.

NRS 473 – NRS 473 authorizes property owners of land in watershed areas or lands having inflammable cover to form a fire protection district for the purpose of securing federal aid. Lands owned or controlled by the federal government or agencies of the federal government are excluded, as are lands within the exterior boundaries of incorporated cities. Practically speaking, any county may “opt-in” to NDF service by forming a Fire Protection District under NRS 473. The state bears financial responsibility for all costs resulting from actions taken by NDF to mitigate emergencies within these districts. (A more detailed discussion on the creation of a 473 district is given in the Interagency Roles and Responsibilities chapter of this report.)

Eight fire protection districts organized under NRS 473 make up the NDF fire suppression jurisdiction. They include:

- The portion of the Sierra Front Forest Fire Protection District (SFFPD) in Washoe County,
- The portion of the SFFPD in Douglas County,
- The portion of the SFFPD in Carson City,
- Storey County Fire Protection District,
- Mount Charleston Fire Protection District in Clark County,
- White Pine County Fire Protection District (comprises all of White Pine County except the City of Ely),
- Northeast Fire Protection District (comprises the entire county except the cities of Elko, Wells, Jackpot, and West Wendover), and
- Eureka County Fire Protection District.

However, the NDF might better serve the state if it could act on its authorities on all state and private lands in Nevada not protected by federal agencies and not within incorporated cities. However, fulfilling this role would require a substantial increase in funding, as

well as new mechanisms for establishing NDF jurisdiction. The current mechanism, fire protection districts established under NRS 473, is not meeting the current needs, let alone future needs. Ad valorem taxing mechanisms authorized under NRS 473 present the NDF with two serious dilemmas: (1) rural counties have limited tax bases that cannot generate sufficient revenue, and (2) NRS 473 produces the unintended consequence of putting the Division in direct competition and conflict with local government agencies with whom they are expected to cooperate.

Mission and Responsibilities

Under its legislative mandates, which are discussed in Chapter IV, the mission of the NDF is to coordinate and manage all forestry, nursery, endangered plant species, and watershed resource activities on certain public and private lands. The Division provides protection of life, property, and natural resources through fire suppression and prevention programs and provides other emergency services as required.

Within that broad mission, the Division provides an organized system for prevention, detection, and suppression of wildfire on approximately 27 million acres of forest and rangelands. In addition, NDF provides varying levels of emergency service ranging from three 24-hour, career fire/EMS stations in the Sierra Forest Fire Protection District to coordination of volunteer fire departments in the Northeast Forest Fire Protection District.

The NDF fire management mission has evolved in response to a variety of needs perceived both internally and by its stakeholders. NDF has devoted a substantial amount of its resources to the all-risk emergency service portion of its mission. Division resources provide various levels of service including structure fire response, emergency medical service, and hazardous materials response.

The current NDF Fire Program Manual reflects its mission and characterizes NDF responsibilities in this way:

The State Forester Firewarden through formal county resolution and/or agreement has the authority to provide protection from structure and other fire. For fires within NDF Fire Protection Districts, the state bears the financial responsibility for all costs resulting from actions taken by NDF in suppressing fires and in minimizing damages to exposed life, property, and natural resource values.

Within NDF Fire Protection Districts the NDF shall utilize legally established volunteer fire departments as its primary delivery system to fulfill its responsibility for structure and other fire authority or through agreement allow the county to reassume these responsibilities.

According to NDF policy, this reflects a transitional role in which NDF provides all-risk service in NDF Fire Protection Districts until those responsibilities can be devolved to local government. However, the current reality reflects the more complicated operating environment in which the NDF works. The NDF staffs three 24/7 all-risk stations in the SFFPD. The Division also minimally staffs 24/7 all-risk stations in Elko County and on Mount Charleston in Clark County, with volunteers relied on to complete on-scene staffing.

In cooperation with the Nevada Department of Corrections, the NDF administers the Nevada Conservation Honor Camp Program to provide training and use of inmates, who are assigned to do conservation work. There are ten camps organized within the three NDF Regions. The camps can field 70 fire crews as well as perform conservation work that includes fuels management projects and direct labor support to communities and NDF cooperators.

In addition, NDF manages an aviation program, including a “heli-tac” operation using two aircraft (discussed further in the suppression chapter).

The Governor also tasks the State Forester – Firewarden to be the Governor’s Authorized Representative (GAR) to the Federal Emergency Management Agency (FEMA). The GAR is empowered to execute on behalf of the state all necessary documents for fire management assistance, including requests for Federal assistance and certification of claims for fire management assistance.

From time to time, NDF bears the cost of mutual aid, mobilization and other large fire support to non-NDF districted counties, without legislative funding to pay for this emergency response.

In carrying out its mission, NDF must routinely coordinate with several other state agencies, especially the Department of Corrections, the Division of Emergency Management, the Office of the State Fire Marshal, and the Nevada National Guard (NNG). It also must coordinate with federal agencies, primarily the Forest Service and Bureau of Land Management. And it must deal with a large number of local emergency

agencies. The interagency aspects of the operating environment are discussed in Chapter IV. It is a highly complex environment.

Funding Sources

Funding for the fire program is as complex as its interagency relationships and responsibilities. The program is funded by four principal sources:

- State General fund
- Federal funds
- County funds (payments for state operation of NRS 473 districts), including:
 - Ad valorem tax collections
 - County General fund
 - District allocation of Consolidated Tax (cigarettes, liquor)
 - AB 104 Funding (Assembly bill to balance funding between the counties)
- Suppression Collections, including:
 - Collections for suppression costs of billable (negligence) fires from the property owner
 - Collections for assistance given to federal agencies, adjacent states, and counties outside NRS 473 districts

In some cases, suppression collections produce net revenue after costs. (Revenues are discussed in greater detail in Chapter X.)

Much of the Division's funding comes from counties and must be used to deliver services within the county, not for other purposes. Consequently, there are great disparities in funding of the NDF program across the state, which is a major complication in the operating environment. The fire program is severely under-funded in some areas and adequate in others. Thus the NDF fire program looks considerably different in each locality, not by design, but driven by the level of revenue a given county can generate from its fire protection district. These circumstances significantly obstruct the Division's ability to lead and manage a comprehensive, systematic fire protection system.

NDF protects lands and property organized into fire protection districts under NRS 473. Under this system, the Division depends on ad valorem taxes collected in the districts for

much of their funding, which puts NDF at a distinct disadvantage. Only the Sierra Forest Fire Protection District on the Sierra Front generates sufficient revenue to fund a credible fire management system. Outside the Western Region, NDF is chronically under-funded and understaffed at the service delivery level.

Because it is largely funded by local taxes, and unlike forestry agencies in other states the NDF lacks the flexibility to shift or reallocate its resources to respond to fire conditions or to allocate its resources to best meet the needs of the state and its citizens. NDF is chronically understaffed for fire service delivery, especially in the Northern Region where NDF delivers service primarily through 27 volunteer fire departments and mutual aid agreements with seven municipal departments. The Northern Region maintains responsibility for the Division's services in its areas, which comprise nearly one third of the state. NDF personnel and NDF-associated fire departments respond to 200–250 fires each year in that Region, more than the other two Regions combined. The NDF meets its responsibilities with 10 full-time NDF employees and two seasonal personnel. The Northern Region previously employed five to seven seasonal employees, but recent reductions in federal funding through the Forest Service forced reductions.

Many projects are funded on a cooperative basis using a combination of county funds, state general funds, and federal cooperator funds. For example, NDF purchases some engines with general fund money and places them in districts. In other cases, the NDF obtains Federal Excess Personal Property (FEPP) equipment, re-develops it using county and general fund money, and then provides the equipment to districts.

There is no current mechanism for NDF to assist counties outside of the NRS 473 districts without reimbursement by the county. Theoretically, the NDF suppression funding cannot be used in these counties, but the NDF has provided assistance under cooperative agreements or on a billable basis.

The NDF and its cooperators share fire suppression costs when fires span the boundaries separating a NDF fire protection district from the jurisdiction of other agencies, or when fires occur close to the boundary. The agencies share costs based on land ownership and protection responsibility. There appear to be no agreements whereby the NDF and cooperators have exchanged fire protection responsibilities, making one agency responsible for all fire costs within a zone regardless of land ownership.

Because their lands cover such vast areas of the state, the Bureau of Land Management and the Forest Service have traditionally covered extensive fire suppression costs when they have assisted with the fire control efforts near federal land. However, in response to increasing congressional and agency pressure to contain large fire costs, both agencies indicate that they will become much more aggressive about scrutinizing large fire costs and recovering costs from firefighting in counties where fires burn outside of federal lands.

In this environment, fire-prone Nevada counties with growing urban/wildland interface problems must be prepared to cover large wildland fire suppression costs. This trend argues for establishing additional fire protection districts or granting the NDF some form of statewide authority or responsibility that enables it to provide the resources of the state to assist counties exposed to high suppression costs. (Revenue suggestions are further discussed in Chapter X.)

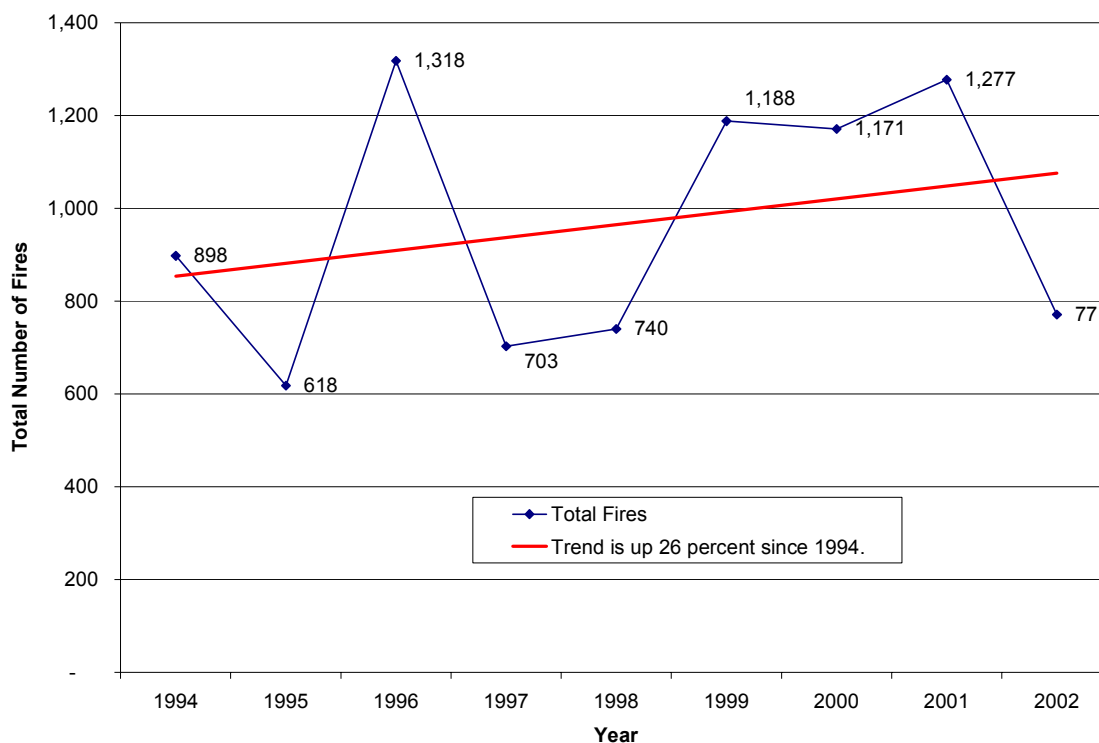
Wildland Fire Experience

The number of wildland fires in Nevada fluctuates considerably from year to year and is trending upward overall, as shown in Figure 4. The number of wildland fires in the last decade has varied from a low of 618 in 1995 to a high of 1,318 in 1996. The average number of fires per year during that period was 965. The three-year period 1999-2001 was marked by a consistently high number of fires, but the number dropped in 2002.⁸

The fires seem to fall into two groups: low years with 600-800 fires, and high years with 1,100-1,300 fires. The number of fires during both the low years and the high years are trending upward, as is the overall trend.

⁸ Annual Western Great Basin Wildfire Summary for years 1994-2002.

Figure 4: Total Wildland Fires, 1994-2002



Acres Burned – There is an even greater degree of variation in the number of acres burned per year than the number of fires, as shown in Figure 5. The average number of acres burned per year from 1994 to 2002 was 501,000. The highest was 1999, with a total of 1,872,000 acres burned. Since 1999, there was a steady decline in burned acres. The second highest year was 1996, with 777,000 acres burned. The low occurred in 1997, when only 45,000 acres were burned.

A total of 4,513,000 acres were lost in large fires during the period 1994-2002, as shown in Table 1. One or a few fires can dramatically affect the number of acres burned. While the number of fires stayed about the same in 1999-2001, the acres burned in 1999 was triple that of the other two high years.

Figure 5: Total Number Of Acres Burned, 1994-2002

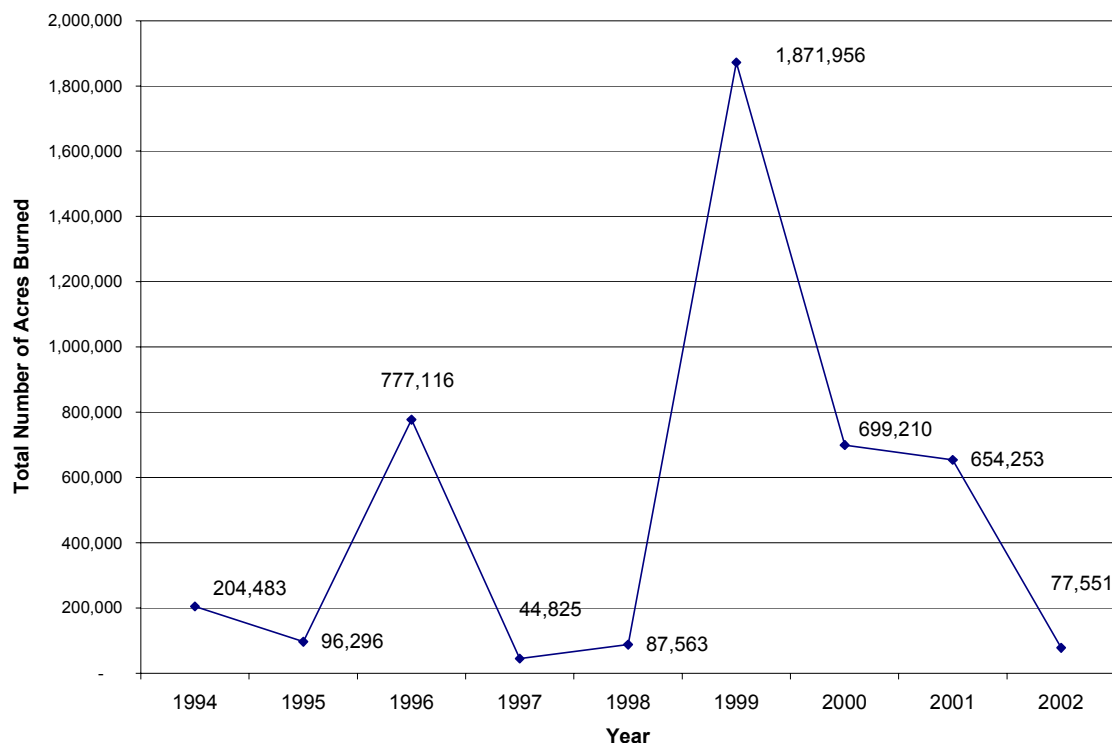


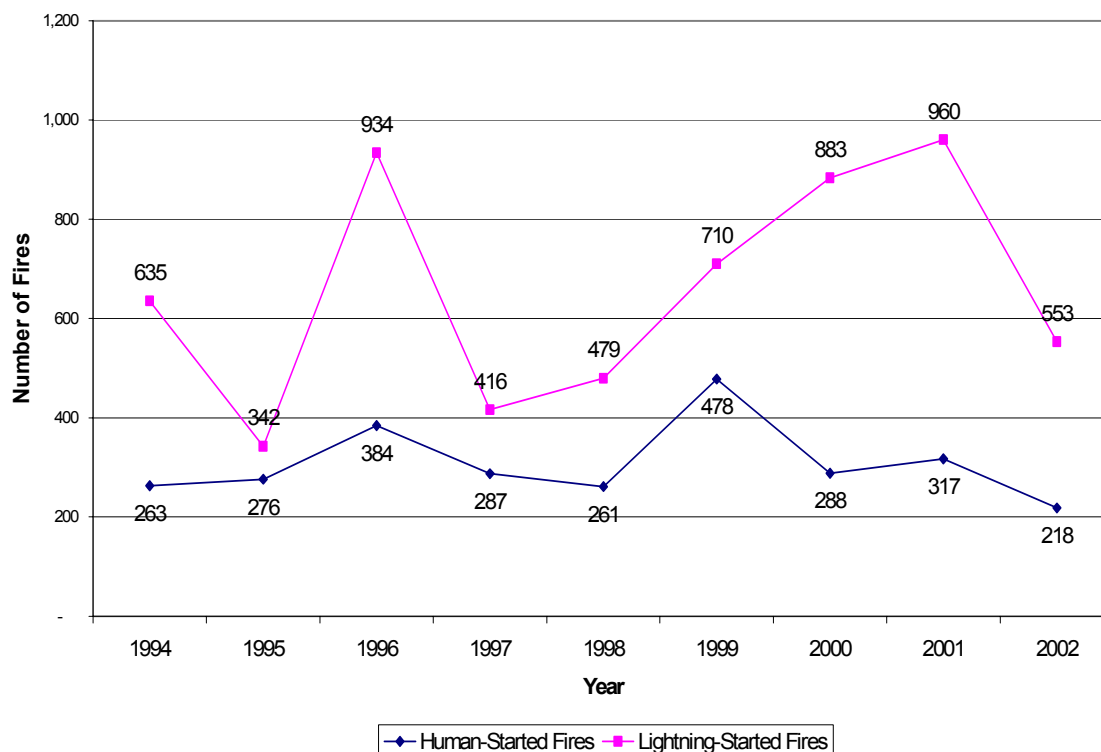
Table 1: Number of Acres Burned (1994-2002)

Year	Acres Burned
1999	1,871,956
1996	777,116
2000	699,210
2001	654,253
1994	204,483
1995	96,296
1998	87,563
2002	77,551
1997	44,825
Total	4,513,253

Causes – The most common cause of wildland fire in Nevada is lightning. There were a higher number of lightning fires than human-started fires each year from 1994 to 2002 (Figure 6). The average annual number of lightning fires during this period was 657. The greatest number of lightning-started fires were in 2001 (960 fires) and 1996 (934 fires).

The largest number of human-started fires occurred in 1999 (478 fires). The lightning-started fires are trending upward, but the human-started fires are relatively level despite the state's significantly increased population. In fact, the number of human fires decreased by 5 percent between 1994-2002, despite a statewide population increase of more than 44 percent, which suggests that the public education efforts by various sectors were probably having good effect.⁹

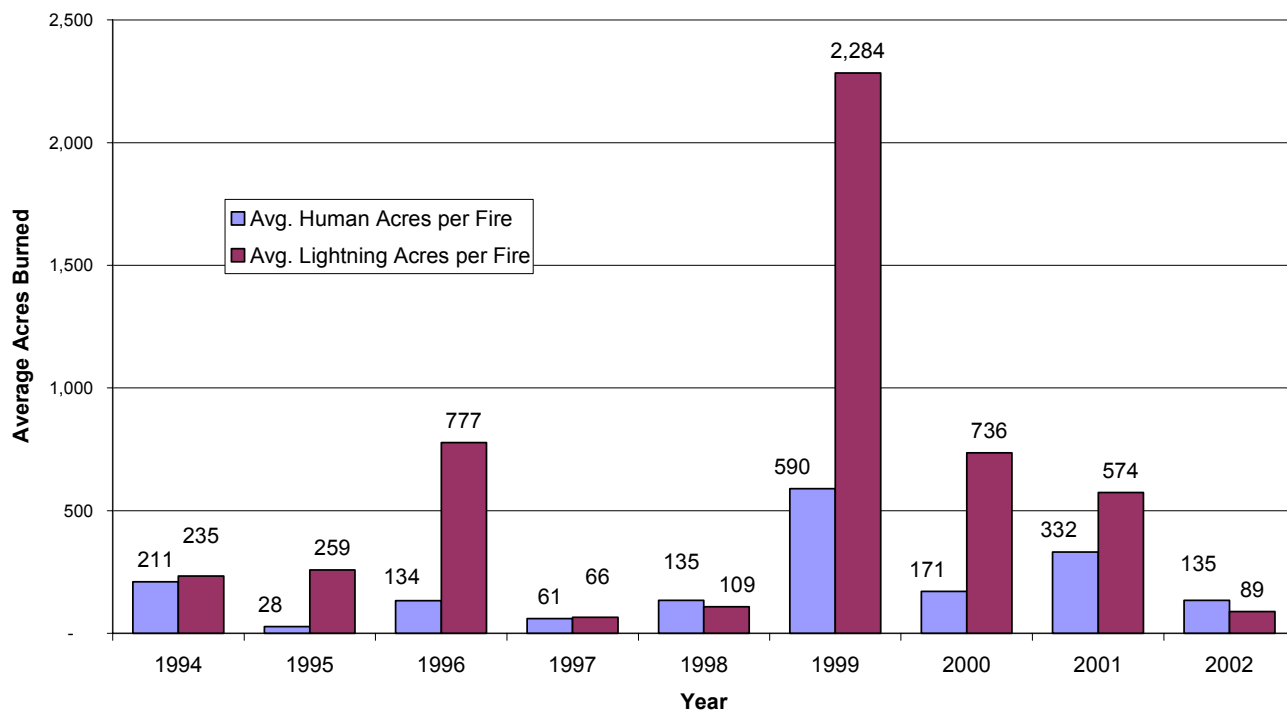
Figure 6: Number of Human- and Lightning-Started Fires (1994-2002)



⁹ One would need more information on the outreach and change in knowledge and behavior of the public education programs to be more confident that the prevention program and not other factors was responsible.

Besides being more frequent, lightning-started fires burn more acres per fire than human-started fires, as shown in Figure 7.

Figure 7: Average Acres Burned in Human- and Lightning-Started Fires (1994-2002)



Where Occurring – The highest number of fires and acres burned occurred on lands protected by the Bureau of Land Management, which is not surprising since they have by far the largest geographic area of responsibility. (Figure 8 and Figure 9.) Of the 4,513,253 acres burned from 1994-2002, 3,908,973 of the acres were on Bureau of Land Management land.

Figure 8: Historical Trend of Fires, By Land Area

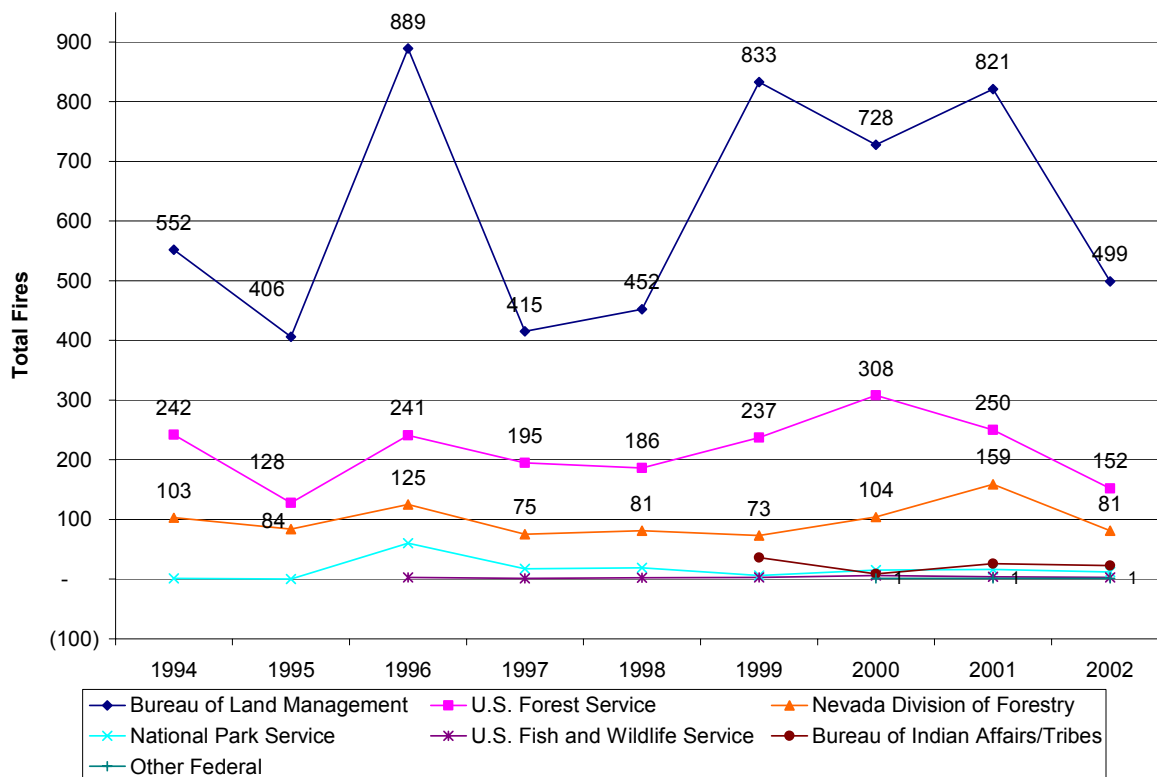
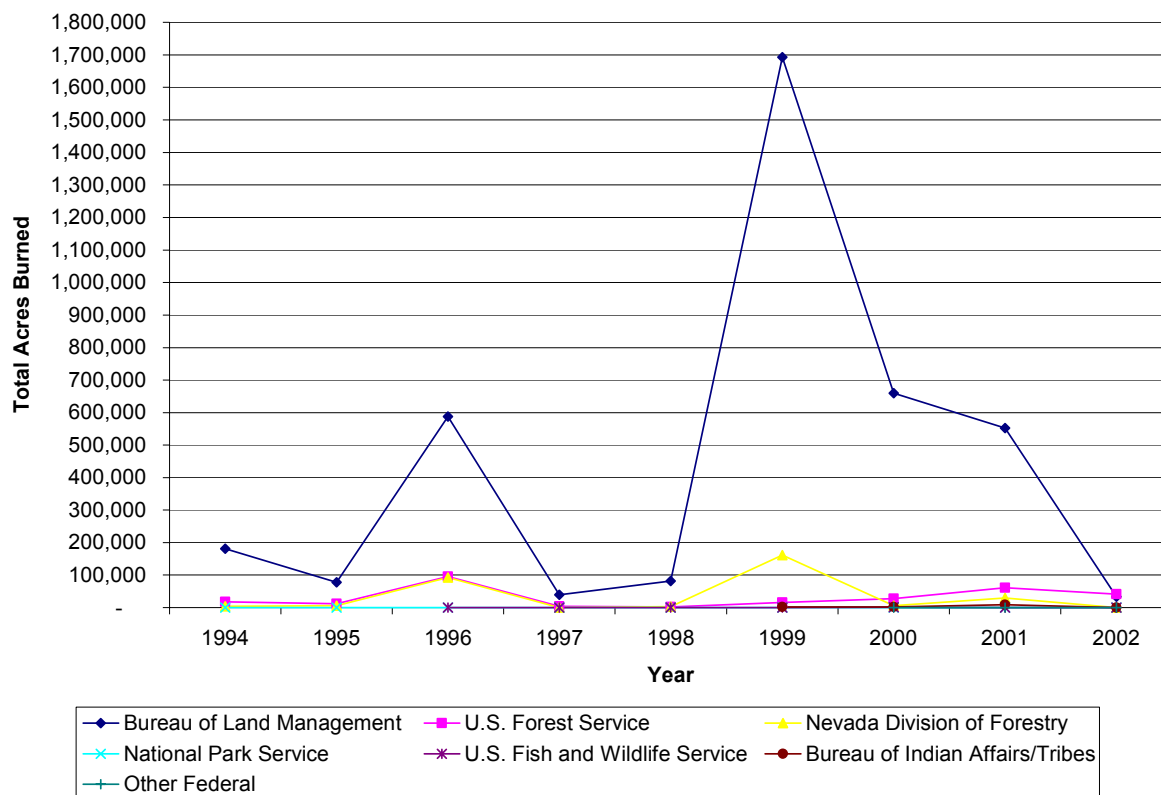


Figure 9: Trend in Acres Burned, By Agency



Geographically, fires tended to be concentrated in the Northeast and Southwest corners of the state. Although there were a few large fires in the southern part of the state in 1995 and 2001, there were numerous large fires in the northern portion every year from 1994-2002. In 1999 and 2000, the central area also suffered many large fires.

Sources – Most of the information in this chapter came from three excellent sources:

NETSTATE.COM. 2003. The Geography of Nevada. Retrieved on September 23, 2003 from <http://www.netstate.com/states/geography/nv>

DCNR. 2002. Nevada Natural Resources Status Report. Nevada Department of Conservation and Natural Resources. Carson City, Nevada.

Infoplease.com, 2003. Nevada: Economy. Retrieved on September 23, 2003 from <http://www.infoplease.com>

III. ELEMENTS OF A FIRE MANAGEMENT PROGRAM

As background for the subsequent chapters, especially for the reader not familiar with wildland fire protection, this chapter describes the core elements of a state wildland fire management program. It introduces some of the concepts and terms common to such programs, and outlines a typical fire management program structure. Components of the actual Nevada Division of Forestry Fire and Aviation program will be discussed in more detail in subsequent chapters.

Overview

Current thinking on the elements of a complete and systematic fire management program reflects not only the evolving nature and growing complexity of the wildland fire management discipline, but fundamental shifts in federal fire policy since 1995.

Goals – Fundamentally, fire management activities and programs now are intended to provide for public and firefighter safety, further land management objectives, integrate programs and disciplines, account for the natural ecological role of fire, and contribute to ecosystem sustainability. The programs are to accomplish their goals through interagency collaboration.

No longer can a fire management program simply prevent fires and minimize the time that a fire suppression organization takes to stop the forward rate of spread of a fire. Though these elements remain important, today's comprehensive fire management program combines cost-effective fire preparedness and suppression to protect communities and natural resources with an approach that recognizes fire as a necessary part of a sustainable ecosystem. Increasingly, fire management strategies focus not only on reducing direct wildland fire risks to communities but also correcting problems associated with the long-term disruption in natural fire cycles. The latter increased the risk of severe wildland fires in fire-prone ecosystems, including Nevada's major plant communities.

People – Effective programs for fire protection and fire management require highly skilled, knowledgeable, and appropriately equipped personnel. Increasingly, these people must be well rounded, with a broad understanding of many diverse disciplines that comprise what is currently considered a comprehensive fire management system.

Interagency Coordination and the Federal Fire Policy – At the policy level, most state wildland fire programs use the standards of the National Wildfire Coordinating Group (NWCG.) The NWCG is the coordinating body responsible for interagency cooperation at the highest level. Individual states are represented on the NWCG by the National Association of State Foresters (NASF). Federal agencies, as the big players, significantly influence the NWCG and the direction of wildland fire management. In the western U.S., state agencies experience this influence operationally as well, because they interact closely with their federal counterparts. Consequently, Federal Fire Policy is fundamentally relevant for state fire agencies such as the NDF.

Current Federal Fire Policy is founded on the following guiding principles:¹⁰

1. Firefighter and public safety is the first priority in every fire management activity.
2. The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
3. Fire management plans, programs, and activities support land and resource management plans and their implementation.
4. Sound risk management is a foundation for all fire management activities.
5. Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.
6. Fire management plans and activities are based upon the best available science.
7. Fire management plans and activities incorporate public health and environmental quality considerations.
8. Federal, state, tribal, local, interagency, and international coordination and cooperation are essential.
9. Standardization of policies and procedures among federal agencies is an ongoing objective.

Like all western state forestry agencies, the NDF operates in a nearly inextricable relationship with its federal counterparts. The above principles help describe current thinking on the elements that constitute a complete and systematic fire management program.

¹⁰ National Interagency Fire Center, 2001, latest version available.

To have a comprehensive fire management approach in today's operating environment, agencies must base their program on carefully crafted fire management objectives. Resource managers and fire managers must collaborate to define resource values, integrate fire and resource management objectives, and establish priorities for community and resource protection, resource management, fuel treatment and restoring the natural role of fire on the landscape.

Wildland Fire Management Strategies

Agencies must develop fire management strategies for diverse areas based on factors such as threats to life, property, and natural resources, and the relevant agency objectives. By establishing the following three levels of fire protection priority, the fire manager can allocate limited fire management resources to the most critical areas and needs:

Critical Protection Areas – These are areas in which lives could be threatened, numerous residential structures exist, or critical resources may be lost. These areas would receive the highest level of fire protection available. All ignitions, including those of both natural and human-caused origin, would be suppressed in these areas. No management-ignited, prescribed fire projects would be conducted. Hazard fuel reduction would be accomplished by mechanical methods to the extent practical, consistent with resource management plans.

Full Protection Areas – These are areas with natural resources requiring protection, but not as critical as the above areas. Unplanned fires should be kept at the smallest possible size in these areas. This option allows the use of management-ignited prescribed fire in pre-determined areas, under pre-planned conditions, to accomplish specific resource management objectives. Prescribed fires and mechanical methods would be used for reducing fuel hazards and for simulating natural fire processes. All human-caused and naturally ignited wildland fires would be fully suppressed as would escaped management-ignited prescribed fires.

Limited Protection Areas – Areas not requiring rapid response time or the level of protection afforded by the first two categories. Containment and confinement strategies are acceptable. Fires may be allowed to burn for a time in limited protection areas when resources are needed elsewhere or when the fire may be managed for resource benefits if they met criteria developed from an analysis of the local situation, values at risk, management objectives and external concerns at the time the fire occurs. This option allows the use of management-ignited prescribed fires in predetermined areas, under pre-

planned conditions to accomplish specific resource management objectives. Suppression action will always be undertaken on naturally ignited wildland fires when they exceed prescribed limits or threaten life and/or property. Suppression action would also be undertaken on all human-caused wildfires or any escaped management ignited prescribed fire.

Elements of Fire Protection

The following elements comprise a systematic approach to fire protection and fire management consistent with the above broad policy and conceptual framework:

Preparedness (Pre-Suppression) – Activities that are undertaken in advance of a fire are called preparedness or “pre-suppression” activities. These activities are designed to ensure timely and efficient response to fires. Fire preparedness includes the training, qualification and equipping of personnel; community and local government grant programs and assistance; personnel and equipment readiness and maintenance; and strategic positioning of firefighters, equipment and other resources near areas of fire potential; and preparation for transportation of resources to fires. Effective preparedness also includes provision of fire detection, dispatching and communications systems.

Fire Detection – A system needs to be organized that discovers fires when they are small and provides for their timely reporting to the proper fire authorities. The fire detection system may use ground patrol, aerial reconnaissance, lookout towers, or public reporting. Early detection reduces resource damage and threats to private property and public safety, reduces firefighting costs, and reduces risks to firefighter safety.

Communications – A communication network is vital for the timely transfer of information to the dispatch center, from the dispatch center to firefighting forces, and between firefighting resources. Fire agency officials must ensure that there is an operable communication system in place to provide for the timely reporting of fires, the ordering and dispatching of resources, and command and tactical communications on the fireline.

No public safety agency works in isolation and a joint, coordinated response often provides the key to success. To provide an immediate, coordinated response, public fire agencies and their interagency cooperators must be able to communicate with each other effectively and efficiently. In the field, where firefighters do their work, mobile radio communication provides their lifeline. Without effective communications, both firefighters and the public are at risk.

Communications “interoperability” is an issue of critical concern in the interagency fire community. Interoperability refers to the ability of personnel from one agency to communicate by radio with personnel from other agencies, on demand and in real time. Major obstacles to interagency interoperability include radio spectrum limitations, funding limitations, incompatible technologies, and the lack of effective communications systems planning. (Public Safety Wireless Network, 2003)

Dispatching – Another key aspect of preparedness is developing a hierarchy for dispatching resources on various types of fires.

INITIAL ATTACK DISPATCHING: This includes receiving and recording information regarding the location of each new fire, determining what suppression forces are necessary to control the fire, notifying firefighters to move to the fire and commence the attack, and arranging for logistical support to firefighters during the course of suppression actions.

Initial Attack Dispatch Centers (IAC) typically perform these functions. Despite their name, they are responsible for both initial attack and extended attack dispatching, and for providing support at the administrative unit level. IACs also provide a broad range of ancillary services including aviation support, intelligence (situation reports, fire danger rating, weather) and support to prescribed burning. Increasingly, interagency IACs are required to provide initial and extended attack dispatching and logistical support simultaneously to several cooperating agencies covering multiple jurisdictions. When local resources are insufficient to meet initial attack and extended attack requirements, higher level “dispatch coordination centers” (DCC) may support the IAC.

EXPANDED DISPATCH: Typically this is done by a temporarily established expanded dispatch center (EDC) that handles some specified functions to relieve the initial attack dispatch organization from the total workload associated with supporting a large fire or multiple incidents. The EDC is usually formed at the IAC and integrated with its normal dispatch organization to increase its staffing and provide extended service.

DISPATCH COORDINATION: This function involves assigning resources to and supporting incidents at multiple agency or administrative units, usually within a defined zone. Dispatch Coordination Centers (DCC) usually perform these functions. They are typically interagency in composition or co-locate multiple agency support functions. A DCC may be co-located with an IAC. When resources in the DCC zone are insufficient,

geographic area coordination centers (GAC) may be established for that area to support the DCC.

GEOGRAPHIC AREA COORDINATION: This function coordinates intelligence and resource status between DCCs within a defined geographic area, including the movement of fire suppression forces and equipment. A Geographic Area Coordination Center (GAC) has responsibility for providing incident support to DCCs for a large fire or multiple fire events. It may coordinate transfer of resources within the geographic area, between local dispatch centers. A GAC does not do initial attack dispatching. Each GAC is supported from the National Interagency Coordination Center when geographic area resources are insufficient to meet needs.

NATIONAL AND INTER-REGIONAL MOBILIZATIONS: These are responsibilities of the National Interagency Coordination Center. The NICC at Boise, Idaho coordinates intelligence and resource status, including the movement of fire suppression forces and equipment, between geographic areas throughout the country. Each GAC is supported from the National Interagency Coordination Center when geographic area resources are insufficient to meet needs. NICC is responsible for coordinating support between a GAC and federal agencies such as the military and FEMA.

States increasingly participate in interagency centers at all levels of the alone dispatch hierarchy. Interagency dispatching arrangements exist to eliminate duplicated efforts, capture the efficiencies and cost-savings of shared service, and promote seamless interaction between cooperating agencies. Interagency dispatch centers typically have the authority to set initial action priorities and implement planned actions to meet management objectives when an emergency occurs. This includes the commitment of resources to out-of-area fire assignments. The dispatch organization is charged with initiating safe and cost effective action on all incidents occurring on or threatening lands protected by the participating agencies. Interagency centers may dispatch not only for wildland fires but also other incidents such as hazardous material spills, search and rescue, and structure fires.

Fire Prevention and Mitigation – Various types of efforts are needed to avert fire ignitions and to mitigate losses when fires occur.

PREVENTION: An integrated fire prevention program incorporates education, engineering and enforcement. The education component includes public information programs designed to reduce the number of fires started by people. Engineering includes

treating fuels to reduce their susceptibility to fire ignition and propagation, and designing structures that are more resistant to approaching wildfires. Enforcement includes permit systems to regulate debris burning, and mandatory brush clearance ordinances in wildland-urban interface communities, as well as catching arsonists.

MITIGATION: In the past 15 years, agency fire prevention efforts have increasingly addressed fire mitigation—efforts to minimize the damage fires cause once they have started, particularly in the wildland-urban interface. Many agency efforts strive to educate homeowners, community leaders, planners and developers about the hazards associated with fire at the wildland-urban interface, how to take an active role to protect their homes and businesses, and how to create communities that are resistant to wildfire. Agency efforts address such aspects of mitigation as fire resistant landscaping, home design and construction and fire hazard recognition and reduction. State agencies typically provide the conduit for federal grants to assist communities with mitigation efforts.

EXTENSION PROGRAMS: State forestry organizations frequently employ “extension education” programs associated with universities to reach out to and advise people on how to manage their land. They provide advice on forestry practices that can include fire prevention and mitigation. Extension programs present opportunities to enlist the support of people and communities for assuming some of the responsibility to prevent and minimize damages from fires in the urban/wildland interface.

Fire Suppression – The various tasks involved in fighting a fire can all be considered part of the fire suppression function. Fire suppression forces are also often involved in prescribed fires and fuel treatment.

INITIAL ATTACK: The first response to a fire is called the initial attack. The main suppression principle of an effective attack is to arrive quickly with enough well-trained, well-equipped, and physically fit firefighters to extinguish the fire or at least contain it at a small size, using safe but aggressive tactics. Various suppression tactics are used depending on the fire spread, fire intensity, terrain, weather, fuel conditions, and other factors. Knowledge of fire behavior is essential to effectively and safely fight fires.

EXTENDED ATTACK: An “extended attack” refers to attempts to control a wildfire that exceeded the capability of the initial attack forces, and is expected to continue to burn actively. Additional firefighting resources are called for by the Initial Attack Incident Commander.

The complexity of an extended attack wildfire frequently requires the assignment of an incident commander with more advanced qualifications than for initial attack and also additional command and general staff personnel. Most agencies expect that an extended attack incident will be contained within the first 24 hours. If not, the incident normally transitions to the control of an Incident Management Team (IMT.)

LARGE INCIDENT MANAGEMENT: When a fire reaches a size or complexity that demands a large organization and prolonged activity to suppress it, it is managed by an Incident Management Team (IMT) made up of an incident commander and appropriate general or command staff personnel with advanced skills.

MOP-UP: Once the spread of the fire has been stopped, it is necessary to extinguish flames and cool heat sources within the perimeter of the fire. Effective mop-up must be achieved to secure the fire and eliminate the threat of a flare-up and possible escape.

Emergency Rehabilitation and Restoration – The need for immediate rehabilitation of land may exist when fires or fire suppression activities occur on steep slopes, erosive soils, aesthetically sensitive areas, near important water courses, in residential areas or when community or private improvements have been damaged. This includes short-term measures to stop erosion, and measures to re-plant damaged areas.

Interagency Partnerships – As discussed earlier, interagency partnerships represent an essential element of a comprehensive fire management program. The partnerships are a mechanism for implementing other program elements. The coordination of partnerships among federal, state, tribal, local, and interagency organizations is another key element of a modern fire program. The partnerships play a key role in preparedness, not just fire fighting. State fire management programs that include systematic fire protection and fuel treatment require integrated partnerships with local governments, federal agencies, and even other states.

The various participants in interagency partnerships are called "cooperators," and the partnerships are often guided by "cooperative agreements." NDF has many examples of interagency cooperation, which are discussed further in Chapter IV, Interagency Roles and Responsibilities.

A successful fire management system usually is comprised of all of the elements described above. A comprehensive fire management system must be employed to address the various complex social, biological and economic issues. It requires the motivation and

commitment on the part of many people including legislators, the public, land planners, developers, and fire service personnel. They must apply what is known about systematic fire management in a practical manner to achieve the most efficient and effective fire protection for the people of Nevada.

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IV. INTERAGENCY ROLES AND RESPONSIBILITIES

For a relatively low population state, the fire protection roles in Nevada are unusually complex, as agencies strive to better serve the state's citizens by coordinating various aspects of the wildland fire protection system across boundaries.

All three levels of government—federal, state, and county—have responsibility for wildland fires in Nevada. The NDF has valiantly tried to accommodate its various stakeholders and tailor its roles to a variety of needs across different geographic, social, and economic environments.

This chapter discusses the various roles and responsibilities across the levels of government, and makes comparisons to practices in other states. We first describe roles of the federal, state, and local agencies, then discuss interagency issues. The roles have become intertwined and need some clarification and perhaps reallocation.

Recommendations for clarifying and, in some cases, altering the present NDF roles are discussed for the most part in Chapter XI, on future strategies.

Federal Responsibilities

Within the State of Nevada, almost 61 million acres of public land are administered by agencies of the federal government. The Bureau of Land Management (BLM) and the Forest Service (FS) are the primary fire management agencies on federal lands in the state. Two-thirds of the public land (48 million acres) is administered by the BLM. The Forest Service administers about 16 percent, 6 million acres. The U.S. Fish & Wildlife Service (2 million acres), National Park Service (700,000 acres), and Bureau of Indian Affairs (6,000 acres) also have responsibilities for fire on federal lands in Nevada. The Department of Defense (3 million acres) and Department of Energy (800,000 acres) manage land with burnable vegetation, but, unlike the above fire agencies, they generally do not participate much in interagency fire management or share wildland firefighting resources.¹¹

¹¹ Source for area data: 2002 Nevada National Resources Status Report, Nevada Department of Conservation and Natural Resources. There is some military participation (e.g., Navy sends engines to fight wildland fires started by its planes dropping flares.)

Unlike other western states with large BLM and FS jurisdictions, Nevada has little state land intermingled with federal lands, which tends to simplify fire jurisdictional responsibilities. (Some states have virtual checkerboard patterns of responsibility.)

2001 Federal Fire Policy – In 1995, the federal government began the process of unifying wildland fire policy among federal agencies. This process resulted in the “2001 Federal Fire Policy.” It contains guiding principles and policy statements intended to guide the philosophy, direction, and implementation of fire management planning, activities, and projects on federal lands. It is intended to ensure consistency, coordination, and integration of wildland fire management programs and related activities throughout the federal government.

Though not fully implemented, each federal agency has been directed to adopt the 2001 Federal Fire Policy as agency policy through applicable directives, manuals, and other media. All agency handbooks, guides, workbooks, and other documents associated with wildland fire management are to eventually reflect the 2001 Federal Fire Policy. The guiding principles of the policy are as follows:

1. Firefighter and public safety is the first priority in every fire management activity.
2. The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process. federal agency land and resource management plans set the objectives for the use and desired future condition of the various public lands.
3. Fire Management Plans, programs, and activities support land and resource management plans and their implementation.
4. Sound risk management is to be a foundation for all fire management activities. Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity. Net gains to the public benefit are to be an important component of decisions.
5. Fire management programs and activities are to be economically viable, based upon values to be protected, costs, and land and resource management objectives. Federal agency administrators are adjusting and reorganizing programs to reduce costs and increase efficiencies. As part of this process, investments in fire

- management activities must be evaluated against other agency programs in order to accomplish the mission, set short and long-term priorities, and clarify management accountability.
6. Fire Management Plans and activities are to be based upon the best available science. Knowledge and experience are developed among all wildland fire management agencies. An active fire research program combined with interagency collaboration provides the means to make these tools available to all fire managers.
 7. Fire Management Plans and activities incorporate public health and environmental quality considerations.
 8. Federal, state, tribal, local, interagency, and international coordination and cooperation are essential. Increasing costs and a smaller work force require that public agencies pool their human resources to successfully deal with the ever-increasing and more complex fire management tasks. Full collaboration among federal agencies and between the federal agencies and international, State, tribal, and local governments and private entities results in a mobile fire management work force available for the full range of public needs.
 9. Standardization of policies and procedures among federal agencies is an ongoing objective. Consistency of plans and operations provides the fundamental platform upon which federal agencies can cooperate, integrate fire activities across agency boundaries, and provide leadership for cooperation with State, tribal, and local fire management organizations.

Wildland/Urban Interface – Fire at the wildland/urban interface is an important issue for federal wildland fire agencies because much federal land is located adjacent to private lands. In Nevada, fire hazards and population are increasing in the wildland/urban interface. Most of the time, local fire departments assist federal agencies in providing protection of these areas.

Over the past decade, the number and length of extended wildland fire suppression operations in the interface have increased in Nevada, which in turn have increased the costs for federal and local departments. Fire suppression resources; equipment and personnel are limited and often over-committed, and the increase in extended operations deplete them further.

Federal wildland fire agencies continue to define and revise their responsibilities in the wildland/urban interface. The BLM and Forest Service have slightly different charters and different levels of resources in Nevada. Traditionally, the Bureau of Land Management and the Forest Service have covered many of the costs when they assist with the fire control effort. However, both agencies indicate they are now asked to recover costs and save money, especially when assisting on fires off federal land. Communities and local fire agencies need to begin to anticipate and budget for such costs.

Bureau of Land Management – According to BLM national policy:

The operational roles of federal agencies as partners in the Wildland Urban Interface are wildland firefighting, hazardous fuels reduction, cooperative prevention and education, and technical assistance. Structural fire suppression is the responsibility of tribal, state, or local governments. Federal agencies may assist with exterior structural protection activities under formal interagency agreements that specify the mutual responsibilities of the partners, including funding.¹²

BLM policy goes on to say that:

BLM managers must incorporate wildland/urban interface considerations into all agreements, operating plans, and land and fire management plans, to ensure that all interface areas are covered and state and local responsibilities are apportioned appropriately. BLM resources will not be planned, nor dispatched, as a normal response for structure or vehicle fires, except in those cases where these fires pose a significant threat to BLM-administered lands. In these situations, resources should only be used in wildland protection. Actions will be limited to the exterior of the structure or vehicle unless there is an immediate threat to human life.

BLM policy extends to the agency's role in interagency dispatching:

BLM employees, in interagency dispatch centers, should not provide dispatch services for cooperating agencies with structure fire, vehicle fire, or emergency medical responsibility unless, (1) a current interagency agreement is in effect, (2) BLM personnel have been trained in local emergency dispatch procedures, and (3) the BLM employee has a delegation of authority for those activities outside the normal scope of the BLM. In these instances, BLM employees will be acting as agents of that agency and will only communicate information contained in that agency's dispatch plan or as directed by an official from that agency.

¹² Source for this and other BLM and FS policy quotes: Interagency Standards for Fire and Fire Aviation Operations 2003, www.fire.blm.gov/standards/redbk2003/chapter11.pdf

BLM lands in Nevada are administered out of their Nevada State Office. BLM also manages the BIA fire program and its resources under a cooperative agreement. The office has the following resources:

- Personnel: 510 FTEs
- Leadership:
 - State Fire Management Officer
 - Chief of Operations
 - Aviation Officer
 - Mitigation/Education Officer
 - Training and Qualifications Specialist
 - Fuels Program Lead
 - Fire Ecologist/Fuels Specialist
- Resources:
 - 52 Engines (primarily Type 4 with some Type 6) with seven-day/week staffing May-September
 - 6 Water tenders
 - 4 “exclusive use” Helicopters
 - 2 “exclusive use” Heavy Airtankers
 - 6 “exclusive use” Single engine Airtankers (SEAT)
 - 5 “exclusive use” Fixed-Wing Aircraft
- Crews:
 - 2 Interagency Hotshot Crews (Silver State and Ruby Mountain IHC)
 - 1 Interagency Hotshot Training Crew (Morning Star IHC–BIA)
 - 8 Type 2 Crews (BIA crews)

Forest Service – Forest Service policy offers similar guidance to that of BLM, stating:

Structure fire protection activities include suppression of wildfires that are threatening improvements. Exterior structure protection measures include actions such as foam or water application to exterior surfaces of buildings and

surrounding fuels, fuel removal, and burning out around buildings. The Forest Service's primary responsibility is to suppress wildfire before it reaches structures. The FS may assist state and local fire departments in exterior structure fire protection when requested under terms of an approved cooperative agreement.

FS policy goes on to say that:

Structure fire suppression, which includes exterior and interior actions on burning structures, is the responsibility of state, tribal, or local fire departments. Forest Service officials shall avoid giving the appearance that the agency is prepared to serve as a structure fire suppression organization. FS employees shall limit fire suppression actions to exterior structure protection measures as described in Section 5137.

Forest Service lands in Nevada are part of the Humboldt-Toiyabe National Forest. Its Fire and Aviation Management program has the following resources:

- Personnel: 260
- Leadership:
 - Chief, Fire and Aviation
 - Deputy Chief, Fire and Aviation
 - Fire Business Management Specialist
 - Aviation, Safety & Training Officer
 - Fire Planning and Prevention Specialist (Las Vegas)
 - Fuels Management Specialist
 - District Fuels Management Specialists (3) with additional proposed
- Resources:
 - 21 Type 4 Engines with 7 day/week staffing (May to mid-October)
 - 22 Type 7 Engines
 - 1 Water Tender
 - 1 “exclusive use” helicopter w/ rappel capability (Bridgeport, CA)
 - 1 Interagency (FS/BLM) helicopter (Las Vegas)

- Crews:
 - 1 Interagency Hotshot Crew (Black Mountain IHC)

The Forest Service program includes prescribed burns on approximately 20,000 acres per year, mechanical treatment on approximately 2,000 acres per year, and 350 wildfires per year (including an average of four incidents requiring an IMT).

State Responsibilities

The predominant state responsibility for wildland fire protection is in the 17 percent of the state that is not under federal administration. The state's wildland fire role varies, as will be discussed below. Its role extends to all-risk response in some areas.

Nevada Division of Forestry – The NDF is a relatively autonomous division of the DCNR. Much of the Division's fire-related responsibilities originate with specific responsibilities and powers granted to the State Forester Firewarden in Nevada law, particularly NRS 472.

According to the draft NDF Fire Protection Manual, the Division's fire protection program exists "to protect the citizens, visitors and natural resources of Nevada from manmade and natural catastrophes, through public education, natural resource enhancement, and emergency service delivery as authorized by NRS 472," which states that the State Forester Firewarden shall:

- Supervise or coordinate all forestry and watershed work on state and privately-owned lands, including fire control in Nevada, working with federal agencies, private associations, counties, towns, cities or private persons.
- Administer all fire control laws and all forestry laws in Nevada outside of town site boundaries, and perform any other duties designated by the director of the DCNR or by state law.
- Assist and encourage county or local fire protection districts to create legally constituted fire protection districts where they are needed and offer guidance and advice on their operation.
- Designate the boundaries of each area of the state where the construction of buildings on forested lands creates such a fire hazard as to require the regulation of roofing materials.

- Adopt and enforce regulations relating to standards for fire retardant roofing materials to be used in the construction, alteration, change or repair of buildings located within the boundaries of fire hazardous areas.
- Purchase communication equipment, which can use the microwave channels of the state communications system and store this equipment in regional locations for use in emergencies.
- Administer money appropriated and grants awarded for fire prevention, fire control and the education of firemen and award grants of money for those purposes to fire departments and educational institutions in the state.

NRS 472 also authorizes the State Forester Firewarden to:

- Enter into contracts with any state or federal public agency, municipal corporation, or any person, firm or private corporation to establish and preserve forest and vegetative cover on forest or watershed land.
- Enter into agreements with the federal government for the purpose of securing cooperation in the protection of the forest and watershed areas from fire.
- Enter into cooperative agreements with any fire protection district and board of county commissioners to prevent and suppress outdoor fires.
- Appropriate and expend funds for needed goods and supply expenses incurred in fire prevention and suppression; the purchase, construction and maintenance of forest protection improvements and equipment; and expenses incidental to the protection of forest and other lands from fire, including office and travel expenses of the Division of Forestry for carrying out cooperative agreements.

The NDF, acting under the previously described authority of the State Forester Firewarden (see Chapter II), can provide a statewide wildland fire protection program on approximately 26.9 million acres of Nevada's forest and rangelands. The resources at risk on these lands are private and commercial structures, standing timber and woodland, forage, watershed, wildlife, livestock, recreational, historical, and cultural sites.

ORGANIZATION AND POLICIES: The NDF divides its fire protection program into two categories:

- Non-NDF Districted Lands
- NDF Fire Protection Districts

NON-NDF DISTRICTED LANDS: On these lands, the Division role is to promote protection from unwanted wildfire through public education, natural resource enhancement, and support of existing emergency services.

NDF FIRE PROTECTION DISTRICTS: NDF serves eight fire protection districts organized under the authority of NRS 473. They are in Carson City and in Clark, Douglas, Elko, Eureka, Storey, Washoe, and White Pine counties. The NDF maintains direct fire suppression and prevention responsibilities on approximately 8.1 million acres of land in four of these eight fire protection districts (in the other four districts, NDF contracts to local entities or coordinates activities of NDF-associated volunteer fire departments). The NDF mission has evolved to providing various levels of all-risk emergency service including structure fire response, emergency medical service, hazardous materials response, and rescue.

The NDF Fire Program Manual states:

The State Forester Firewarden provides an organized statewide system for prevention, detection, and suppression of wildfire in the forest and rangeland environment as well as supports all risk emergency services within the Division's protection districts.

Broad authorities provided by NFS 473 and a 1961 Attorney General's opinion enabled and, in some ways, caused a substantial enlargement of the NDF mission since 1979. The 1961 Attorney General's opinion found that in addition to the State Forester Firewarden's responsibilities to direct fire prevention and suppression activities on watershed lands, the State Forester Firewarden was also "directed and authorized to direct fire prevention and suppression work in structures."

The current NDF Fire Program Manual reflects this evolved mission and characterizes NDF responsibilities in this way:

The State Forester Firewarden through formal county resolution and/or agreement has the authority to provide protection from structure and other fire. For fires within NDF Fire Protection Districts, the state bears the financial responsibility for all costs resulting from actions taken by NDF in suppressing fires and in minimizing damages to exposed life, property, and natural resource values.

In addition, the manual states:

The State Forester Firewarden through formal county resolution and/or agreement has the authority to provide protection from and mitigating non-fire incidents. For

emergencies other than fire in NDF jurisdictional Fire Protection Districts, the state bears the financial responsibility for all costs resulting from actions taken by NDF in mitigating the emergency in minimizing damages to exposed life, property, and natural resource values.

Regarding emergency medical service, current NDF policy states:

NDF may provide emergency medical services under the terms of the county fire protection agreement. Normally, NDF direction to provide EMS in protected areas under cooperative agreement will be by resolution of the controlling board (Board of Fire Commissioners). This will normally be at the Basic Life Support level. Higher levels of emergency medical service personnel such as Emergency Medical Technician-II or Paramedic may be provided with approval of the State Forester Firewarden.

Furthermore:

...the NDF may provide rescue and emergency medical services on a mutual aid or automatic aid basis to other fire protection jurisdictions.

As stated in the Fire Program Manual, NDF maintains a policy that:

Within NDF Fire Protection Districts, the Nevada Division of Forestry shall utilize legally established volunteer fire departments as its primary delivery system to fulfill its responsibility for structure and other fire authority or through agreement allowing the county to reassume these responsibilities. [italics added]

The above policies reflect what was described by several NDF personnel as a transitional role in which NDF provides all-risk service in NDF fire protection districts until those responsibilities can be devolved to local government. However, the current reality reflects the more complicated operating environment in which the NDF works. For example, the NDF staffs three 24-hour/seven-day all-risk stations in the Sierra Forest Fire Protection District. In that district, the NDF delivers true all-risk emergency service including Paramedic EMS. In the Northeast Area Fire Protection District, however, NDF maintains EMS capability but only in an assistance role.

The Division also minimally staffs 24-hour/7-day all-risk stations in Elko County and on Mount Charleston in Clark County and relies on volunteer response to complete on-scene staffing in those locations. The NDF presence provides substantial improvement to these counties emergency service capacity. However, the NDF cannot begin to approach NFPA standards or other industry standards with the current limited budget. The Division would, if it could, step up to at least two-person staffing seven days per week for all its

structure engines. At present, some engines have two persons assigned; others have one for part of the week and two at other times. The present concept is that the one-person engine would receive backup from local volunteer firefighters. (See Chapter IX on Suppression for more details on deployment.)

In addition to the responsibilities outlined above, the State of Nevada's Governor has certified the State Forester Firewarden as the Governor's Authorized Representative (GAR) to FEMA, empowered to execute, on behalf of the State, all necessary documents for fire management assistance including requests for Federal assistance and certification of claims for fire management assistance.

Recommendation 1: If the NDF is to maintain all-risk stations, it should provide at least two-person, 24-hour, seven day per week coverage on the all-risk engines assigned to those stations. This is with the tacit assumption that volunteers would complete staffing to at least 4 firefighters per crew. Current NFPA and OSHA standards forbid having two firefighters enter a flaming structure without two outside, unless there is known to be a life at risk. (This is the so-called "2-in, 2-out" rule.) A two-person team is much safer and more capable than a one-person response, and would have the necessary four on scene when a second unit arrives.

INMATE RESOURCES: In cooperation with the Nevada Department of Prisons, NDF administers the Nevada Conservation Honor Camp Program to provide for the training and use of inmates assigned to conservation camps. The 10 camps are organized within the 3 NDF Regions. The camps can field 70 fire crews as well as perform conservation work including fuels management projects, and direct labor support to communities and NDF cooperators.

AVIATION RESOURCES: The NDF manages an aviation program, including a "heli-tac" operation using two aircraft. NDF heli-tac primarily provides wildland fire initial attack helicopter support to the NDF and its cooperators, though extended attack operations may be approved when needed. The NDF heli-tac operation is a statewide program supervised and managed at the State Office level. The Western Region Stewart Camp provides primary operational staff, though other Regions may be called on to supply additional personnel. The operations are based out of the Minden-Tahoe airport, but the helicopters and their personnel modules may be positioned elsewhere in the State as necessary.

Nevada Division of Emergency Management – The Nevada Division of Emergency Management (DEM) has responsibility for developing and maintaining the Nevada Comprehensive Emergency Management Plan, which serves as the Governor's

emergency operations plan during times of crisis and prescribes the emergency roles of State agencies. The Plan lists the NDF as the State's Primary Agency for the firefighting emergency support function. NDF is also considered a resource for Nevada's mass casualty plan, reflecting the Division's expertise in areas such as emergency medical service and hazardous materials.

The NDF State Office staff and the DEM Operations Manager share their office location, which is adjacent to the State Emergency Operations Center (EOC). The agreed upon delegations and physical co-location of their staff facilitates NDF use of National Guard resources in a way that is far more efficient than in most other states.

The authority to order NNG resources has been delegated directly to the State Forester Firewarden. He in turn delegates this authority to the State Headquarters Duty Officer, who has the authority to make coordinating decisions concerning emergency management operations. A cooperative agreement between the NNG and NDF and an annual operating plan guide NNG support to fire operations.

When required by critical fire conditions or resource shortages, the NDF uses NNG helicopters operated by fire-trained pilots and equipped with buckets and agency radios for fire suppression operations. The NNG can field five large "Type I" helicopters and seven medium "Type II" helicopters for fire suppression.

The NNG helicopters may be placed in "ready recall" status (two hours to rotors turning) or "standby" status in which they may be immediately dispatched. The NNG may also provide field kitchens to support NDF fire suppression operations.

Large Mobilizations – The increasing need to mobilize local government firefighting forces has in turn led to the need for a comprehensive strategy for regional, statewide, and interstate mobilization. The interagency dispatch system is capable of managing most fire situations in Nevada through its vast network of federal and state resources. However, there are times when the fire situation demands large-scale mobilization of local government resources, particularly from fire departments. These mobilizations tend to stretch the resource base, and the ability of the interagency dispatch system. In recent years, there have been major mobilizations of fire department resources annually, and in some cases, several times per year. The mobilization system requires some improvement, which will be discussed further in Chapter VIII (Pre-suppression, Dispatching, and Support).

The State of Nevada, through its DEM, participates in the Emergency Management Assistance Compact (EMAC) administered by the National Emergency Management Association (NEMA). The EMAC is intended to provide a way for states to obtain interstate aid in disaster situations. It enables quick response to disasters using the resources and expertise of its member states. Nevada's EMAC participation can be part of a comprehensive solution to the mobilization issue. However, cooperators throughout the State voiced a need for a more comprehensive, "one-stop" mobilization system, something similar to that provided by the California Office of Emergency Services (OES) for statewide and interstate mobilization. Some of Nevada's wildland fire cooperators suggested that the DEM should assume this role, while others said they would prefer to see NDF take the lead.

There are several alternatives for organizing a more comprehensive mobilization system. It could be organized as a stand-alone DEM function, as a stand-alone NDF function, or as a collaborative function guided by colocated NDF/DEM staff. The DEM already represents Nevada in the EMAC, and NDF performs in a statewide mobilization capacity semi-annually and maintains a system of Regional mobilization boards. Since this study began, the NDF has taken the lead on this issue, and has established the position of "Mobilization Manager".

The federal cooperators, NDF and the DEM, all seem to agree that the local government mobilization system should be separate from the responsibilities of the existing interagency dispatch system. That is not to imply that there should be no interoperability or collocation between these systems; they must remain highly coordinated.

Recommendation 2: Organize statewide and interstate mobilization of state and local fire department resources under a unified comprehensive mobilization system. It could be patterned on the California OES. The responsibility could be organized as a joint function of the NDF and DEM in a way that integrates the interagency dispatch system and EMAC. The system should address three tiers of mobilization:

- *Statewide mutual aid*, addressing how resources will be mobilized from adjacent counties for 12-24 hours.
- *Statewide mobilization*, addressing how resources will be mobilized and shifted throughout Nevada, such as large numbers of fire department resources from southern Nevada to the western or northeastern parts of the State.

- *Interstate mobilization*, addressing how fire department resources will be mobilized to California, Arizona, Utah, Idaho, Oregon, and other states in response to major fire emergencies outside Nevada.

Recommendation 3: Keep NDF staff and the DEM Operations Manager co-located and with a direct relationship. This is an organizational strength that should be preserved.

Other aspects of NDF organization and responsibilities will be discussed in the sections below, and at the end of the chapter.

County Responsibilities

Agencies of local governments (cities and counties) usually maintain responsibility to attack fires of any kind in their jurisdiction, including wildfires. But as discussed above, in some areas of Nevada, the state too has a role in helping or even acting for local agencies.

Nevada statutes provide several mechanisms for developing new fire protection organizations. Below is summarized the process of forming a fire district, and the responsibilities of a district once formed.

NRS 473 Fire Protection Districts – Nevada Revised Statute 473 (NRS 473) provides each county with the authority to form a fire protection district when petitioned by property owners in watershed areas or areas with flammable vegetation. The law establishes the fire protection districts as county entities requiring cooperative effort between the State Forester Firewarden and the board of directors of the District. The statute empowers the State Forester Firewarden to determine a district's feasibility prior to proceeding with its formation.

Once formed, the county commissioners constitute the board of directors for the district. The State Forester Firewarden has the following administrative responsibilities:

- Establishing regulations for the organization of the area included within the district to meet the terms and requirements for federal aid.
- Determining the feasibility of including or excluding lands in the district.
- Preparing a budget for the district's fire expenses, for approval by the district's board of directors.

- Determining the amount of special tax needed to defray the district's expenses (which the board of county commissioners may levy).
- Prohibiting or restricting activities within the district when a danger to public safety or natural resources exists because of high fire danger.

A 1961 State Attorney General's opinion held that, in addition to spending funds for protection of range and forest lands, fire protection districts organized under NRS 473 are authorized to spend funds obtained through ad valorem taxation for the protection of buildings and structures as well. Under this provision, the district may contract with the county or cities to provide fire protection in structures, and may spend a portion of its funds deposited in the state treasury to implement such contracts.¹³

While the law establishes fire protection districts as county entities requiring cooperative efforts between the Firewarden and the board of directors of the district, the 1961 Attorney General's opinion said that:

The law in respect to the powers and duties of the State Forester Firewarden appears to authorize this officer to administer all fire control work within the district both within structures and otherwise.¹⁴

Using this opinion and NRS 472 for guidance, in practice the NDF regards NRS 473 fire protection districts as "NDF Districts" established and administered by the State Forester Firewarden for the protection of watershed and forest/woodland.

NRS 474 Fire Protection Districts – Another type of fire protection district can be formed under the authority of NRS 474. It creates fire protection districts by election or creation of the board of county commissioners.

Under this statute, a fire protection district may be formed in any contiguous, unincorporated territory not included in any other fire protection district and outside the jurisdiction and rules of the Forest Service. Like NRS 473 districts, NRS 474 county fire protection districts are initiated through a landowner petition and created by election without need for action by the State Forester Firewarden. Unlike NRS 473 districts, which are governed by county commissioners, a board of elected fire commissioners governs the 474 fire protection districts.

¹³ AGO 265 12-13-1961

¹⁴ Ibid

The various fire districts are referred to as “473” or “474” districts depending on which law they drew on.

County fire protection districts also may be formed under NRS 474 by ordinance of the board of county commissioners. The county commissioners may form these districts in any territory not included in any other fire protection district. Their purpose must be to prevent and extinguish fires in the county until such time as the territory may be included in another fire protection district formed in accordance with NRS 473 or 474. These districts, like 473 districts, are governed by the board of county commissioners acting as the board of fire commissioners.

By state statute, the board of fire commissioners of a 474 district must cooperate with the State Forester Firewarden to coordinate its protective activities. The goal is coordination with the State Forester Firewarden’s plan for prevention and control of large fires, mutual aid among districts, training of personnel, supply, finance, and other purposes to promote fire protection on a statewide basis.

Under NRS 474, the State Forester Firewarden can set standards for fire protection equipment and facilities of these districts to facilitate mutual aid between districts. The statute directs the board of fire commissioners to cooperate with other agencies as provided by NRS 472 to prevent and suppress wildland fires, and authorizes the board to contribute suitable amounts of money from taxes to such cooperating agencies, or to receive contributions from the same agencies for these purposes.

In practice, fire departments serving NRS 473 and 474 districts may interact with the NDF in a variety of ways:

- As volunteer fire departments that, by agreement between the NDF and the county, are structured within the NDF organization, by virtue of the Division’s status as an agent of the county to serve only NRS 473 district.
- As departments that serve both the NRS 473 and 474 districts within a county; they may or may not be organized administratively under the NDF for protecting the NRS 473 district.
- As departments that serve NRS 473 districts in counties where the NDF provides protection and who cooperate with the NDF whether by statutory requirement, county policy, practicality or spirit of cooperation.

- As departments providing or receiving mutual aid or automatic aid under formal agreement.

Interagency Cooperation and Organizations

Nevadans benefit from rich and very robust interagency cooperation in wildland fire management. A high level of cooperation exists between agencies at all levels of government, from local to state to federal. Innovative cooperative approaches regarded as national models have originated in Nevada, including the Sierra Front Wildfire Cooperators (SFWC) and the Nevada Fire Safe Council (NFSC), which are discussed below. Interagency dispatching also is thriving in the state.

The state-federal interagency environment especially seems to be strong overall. Federal cooperators, particularly the two major ones, BLM and FS, said they were pleased with the level of cooperation between their agencies and the NDF, and cite the Nevada Fire Board, which guides and is a cornerstone of interagency cooperation. According to the FS, the NDF is at an all-time high in terms of its cooperative relationships. The FS cites quality leadership and very good people at NDF.

Volunteer Grants – Approximately \$750,000 in volunteer fire assistance (VFA) funds from the National Fire Plan pass through the NDF each year. The NDF and BLM distribute VFA funding through grants, and utilize a joint application. The Nevada Fire Board reviews each grant application. Both the FS and BLM believe that training and equipment for Nevada volunteer fire departments was adequate, which is an uncommon and very positive federal perspective of local agencies.

Unified Command – The NDF maintains a policy of using unified command on multi-jurisdictional incidents, and implements that policy through a standard operating procedure. Still, execution of this standard operating procedure on-the-ground remains spotty. One interagency cooperation issue raised by the Division's federal cooperators was the lack of consistency in NDF's application of unified command on multi-jurisdictional incidents, particularly as it relates to resource ordering, resource deployment and cost control. This is an area for improvement, as it is for emergency management in general across the nation.

Recommendation 4: Universally implement unified command on multi-jurisdictional incidents as NDF standard operating procedure. This will help improve resource ordering, resource deployment, and cost control.

Sierra Front Wildfire Cooperators – The Sierra Front Wildfire Cooperators (SFWC) is a particularly strong interagency effort, based in western Nevada. SFWC is a consortium of 24 stakeholder organizations, represented by chief-level representatives or their designees. It is governed by a board of directors. A single voting member represents each entity that has voting privileges—those contributing \$1,000 or more to the SFWC budget each year. Organizations may become “associate members” without voting privileges for a \$100 annual contribution. NDF is a full member.

The SFWC purpose is to facilitate communications and cooperation, including radio communication interoperability. A major SWFC initiative is the “Living with Fire” prevention and mitigation campaign, in collaboration with University of Nevada-Reno Cooperative Extension program.

Some NDF cooperators suggested that Sierra Front Wildfire Cooperators can be a model for other parts of Nevada and a national model for cooperation as well. Other cooperators fully support SWFC but believe it has not used its combined influence enough in support of the National Fire Plan and 10-Year Comprehensive Strategy, particularly to raise public support for fuels projects. Several cooperators said they would like to have the NDF Western Region participate even more in SWFC.

Recommendation 5: NDF should embrace the Sierra Front Wildfire Cooperators and participate even more in that innovative effort.

Recommendation 6: Use the SFWC cooperative model in other parts of Nevada where a sufficient “center of gravity” exists, e.g. southern Nevada (Clark County) and Elko County. The “center of gravity” required is local community capacity and resources, and a core group of people committed to make it work.

Humboldt County Wildfire Support Group – The Humboldt County Wildfire Support Group represents another interesting and innovative joint initiative. It was started by Humboldt County ranchers and BLM. It grew out of the desire of ranchers to help put out fires that were burning their rangeland. BLM contributed equipment and training to the ranchers, who organized themselves into 16 teams of citizen first responders. The Humboldt County Wildfire Support Group also is an affiliate of the Nevada Association of County Officials (NACO), which applies for grants on the group’s behalf.

The Humboldt County Wildfire Support Group has expanded its scope to developing pilot programs to rehabilitate burned rangeland and practice rotational grazing on or near burned land.

NDF cooperators suggested that this model, like SFWC, might be applied by NDF in other counties. They also would welcome NDF becoming involved in the group's programs.

Recommendation 7: NDF should participate in the Humboldt County Wildfire Support Group. The appropriate cooperative role should be worked out between NDF, the BLM, and members of the group.

Recommendation 8: Consider using a version of the Humboldt County Wildfire Support Group cooperative model in other Nevada counties where NDF may not be able to provide adequate staffing resources on its own.

State-Local Interagency Cooperation – State-local interagency coordination is not viewed by the local agencies as being as strong or positive as the state-federal coordination. Relations between NDF management and city/district fire chiefs appear to be strained in a number of cases. Many fire department officials we interviewed were negative about cooperation between their departments and NDF management.

In some locations, local government cooperators noted solid interagency cooperation at and below the Battalion Chief level, but cited organizational relationships that break down above that level. As a symptom, we met with concern and distrust over the nature of this study, and a sense that the chiefs feel that NDF must hold itself more accountable to its local government cooperators.

We encountered a persistent perception among local fire officials that the NDF has not adequately fostered working relationships based on trust to resolve issues between itself and local government agencies. Several local chiefs said their voices are not being heard. Considering the responsibilities, jurisdiction and service delivery model of the NDF, this situation requires attention.¹⁵

NDF Role in NRS 473 Districts – Most cooperators appear to agree that the NDF has a critical role to play in providing or augmenting wildland fire response and providing incident management as part of a clearly defined NDF fire protection system. Some local government cooperators, however, find the NDF mandate and role in NRS 473 districts unclear, citing the same “mission-creep” noted by NDF management and federal cooperators.

¹⁵ We discuss stakeholder issues, concerns, and their implications further in Chapter VI.

The separation between the governing body and the contracted administrator and provider of service seems to be a point of particular concern. There is also a perception in some localities that the NDF is not living up to the spirit of the agreements in which it has contracted service back to fire protection districts. In the contracted counties, lines of supervision for NDF seasonal engines remain unclear and are often remote. District chiefs prefer day-to-day supervision by an NDF Captain in the local station or by a fire protection district Captain.

Like the federal cooperators, most local cooperators outside the Northern Region believe that NDF is “off-mission” in the provision of all-risk emergency services. The local cooperators believe that the NDF is not able to provide effective all-risk fire protection because it cannot keep up with rising service levels, increasing training needs, or maintaining minimally necessary staffing and staffing depth. On the other hand, local governments in the Northern Region report that they cannot envision a time when NDF can devolve responsibilities for all-risk emergency services to the counties. It is clear that the NDF Western and Southern Regions present an altogether different circumstance from the Northern Region.

City of Reno Annexation/NDF Station #5 in Verdi Area – NDF and the Washoe County Board of Commissioners administer the Washoe County portion of the SFFPD. The commissioners act as the District’s governing body, and the State Forester Firewarden administers the district. In the past year, the City of Reno annexed 2,700 acres of the Sierra Forest Fire Protection District (SFFPD) in the East Verdi/Mogul area, including the Boomtown Hotel and Casino. In accordance with NRS 473, the State Forester Firewarden and the Washoe County Board of Fire Commissioners took action to exclude these lands from the SFFPD.

SFFPD operates three 24-hour, seven-day, career stations staffed by NDF personnel. It has historically protected the annexed area from the Verdi Station 5. The disposition of the Verdi Station 5 remains to be determined in the light of the annexation.

The project team evaluated the positions of both NDF and the City of Reno, with the intent of making recommendations for resolving the issue in a way that best served the citizens of the SFFPD and to the satisfaction of all parties. The team came to the conclusion that the Verdi annexation/NDF Station #5 is symptomatic of the much broader issue of whether NDF should continue as an all-risk emergency service provider anywhere in the SFFPD, and that the all-risk service should be phased out.

Recommendation 9: Make an orderly transition out of the all-risk emergency service (non-wildland fire) mission in the Sierra Forest Fire Protection District. Devolve responsibility for non-wildland fire services to local government entities capable of providing service. Specifically, transition out of all-risk emergency services provided from Stations 5 (Verdi), 10 (Bowers) and 8 (Galena). The transition should be guided by a plan to devolve municipal fire, medical and rescue service to the Truckee Meadows Fire Protection District (TMFPD) by contract. Before this study ended, the NDF already had taken action on this recommendation, setting a target date for transition of January 2006. The Division will review its planned transition strategy with all affected employees. In the process, keep lines of communication open, protect the interests of affected employees in negotiations, and aid in their transition from the NDF or into other NDF positions.

Recommendation 10: Retain NDF responsibility for wildland fire management, including wildland fire suppression, in the SFFPD as part of the Division's overall responsibilities as a natural resources agency. Deliver service through a robust seasonal wildland fire protection service sufficiently supported at the regional, station and company levels by career staff. The SFFPD should not transfer responsibility for wildland fire to local government agencies or other fire protection districts.

Carson City – According to NDF policy, “Lands within the exterior boundaries of any incorporated city are...excluded from NDF jurisdictional fire protection districts.” Nevertheless, a portion of the SFFPD lies within the limits of Carson City. This is an issue for the Carson City Fire Department, which would prefer that NDF have no jurisdiction within the city limits. However, the city's mayor believes that NDF should continue to retain the wildland fire responsibilities, as do the federal agencies.

Recommendation 11: Carson City should not take on wildland fire protection in its portion of SFFPD; NDF should continue in that role at least for the time being. The city fire department does not have the capability at present to handle wildland fire protection. They would not have access to the state's emergency fire suppression account. The situation could be revisited if and when these issues are resolved.

Mount Charleston Fire Protection District (MCFPD) – NDF staffs a 24-hour/7-day station that provides all-risk emergency services to the small Mount Charleston Fire Protection District in Clark County. NDF provides minimal engine staffing and cannot mount an effective structure fire attack without backup from the Clark County Fire Department (CCFD) volunteers or career staff. The CCFD is providing material support, including personal protective equipment, extrication equipment and training to NDF beyond the responsibility of the county.

The Forest Service is also present in the district as is a volunteer fire department associated with the CCFD. Their equipment is housed in the volunteer station directly

across the street from the NDF station. Additional volunteer stations associated with the CCFD exist nearby. The CCFD volunteers can mount a reasonably reliable daytime response and are backed-up by career firefighters from the CCFD. There is also a City of Las Vegas Fire Department Station nearby that will respond to the lower portions of the district.

Both Clark County and NDF personnel report having a poor working relationship that seems to stem primarily from personality conflicts. The relationship has spilled over into the tactical environment, with worrying implications centering on communication interoperability. Clark County feels that the NDF role in this fire district remains unclear, and disagreement exists over NDF jurisdiction and authority – whether the Division administers the district or is a service contracted by Clark County. No current written agreement guides the relationship.

The CCFD believes that a 24-hour all-risk presence is required on Mount Charleston and finds the NDF presence to be convenient and relatively inexpensive, considering the expenditures that would be required to establish a CCFD career presence there. However, NDF charges to Clark County are approaching a level at which the CCFD might consider providing a career station in lieu of NDF protection. Given cost considerations, the CCFD would prefer that NDF remain as the 24-hour presence, since NDF still represents a bargain for Clark County. However, officers of the CCFD indicate that they will only be able to continue with the NDF if there is improvement in the working relationship, or CCFD is given some degree of control over the NDF resources.

Despite the CCFD willingness to retain the NDF as the all-risk emergency service provider on Mount Charleston, one must ask from a public policy perspective if that is the appropriate course of action, considering the following:

- A State agency is providing all-risk emergency service in Nevada's wealthiest county, which has a highly developed and capable fire department
- Ad valorem taxes collected in Clark County fund both the NDF and CCFD
- The CCFD is providing additional direct material support to the NDF

As noted earlier, it is NDF policy to provide all-risk emergency service in a transitional role until such a time as these responsibilities can be devolved to a county or other division of local government. However, the CCFD is highly capable of providing full service on Mount Charleston, and at a higher level than the NDF.

Recommendation 12: Begin to plan for an orderly transition out of the all-risk emergency service (i.e., the non-wildland fire mission) in the Mount Charleston Fire Protection District within a five-year period. Given the circumstances described above, the NDF is approaching the strategic cross-roads at which it has fulfilled its transitional role and should devolve responsibility for non-wildland fire services to the Clark County Fire Department. This transition should be guided by an orderly transition plan developed collaboratively by the MCFPD, NDF, and the Clark County Fire Department that will protect the interests of the Division's current employees as this transition is made, facilitating lateral transfer or reassignment into new positions supporting NDF responsibilities when possible.

Recommendation 13: Retain NDF responsibility for wildland fire in the Mount Charleston Fire Protection District. Deliver service through a robust seasonal wildland fire protection service sufficiently supported at the regional, station and company levels by career staff. The MCFPD/NDF should not transfer responsibility for wildland fire to local government agencies or other fire protection districts. Establish interagency wildland fire stations in existing NDF facilities, inviting the Forest Service to staff joint stations.

Other Local Issues – Some local governments (e.g., Reno and Carson City) are beginning to suggest that they can provide wildland fire service equal to what they receive from the NDF at the same or lower cost. Historically, the “insurance policy” of state emergency funds has kept the fire protection districts allied with NDF. However, some in local government express the view that they are willing to take the chance of having to cover a portion of large fire costs. The “insurance policy” argument for remaining allied with NDF is losing some of its influence. Those who regard the “insurance policy” issue as moot would prefer that the state establish an emergency fund to cover costs to local jurisdictions assuming responsibility, including:

- FEMA “floor costs”
- The 25 percent of incident costs above the floor cost that FEMA typically does not fund
- Statewide mutual aid

The incident would still have to meet eligibility criteria to be funded, as is the case now.

However, until such time as Nevada law includes a mechanism for dissolving NRS 473 Districts, the existing districts have to remain in place. Local entities wishing to become the agency with wildland fire jurisdiction would have to provide service as a contractor to the Board of an NRS 473 District and fully replace NDF capability in that jurisdiction.

Recommendation 14: Any contracts with local jurisdictions for fire protection services should specify the level of service to be provided and performance indicators. This must be considered if local governments are to provide service in a district such as SFFPD. The level of service stipulation may cause some rethinking by local governments considering taking on the responsibility for wildland fire protection; the reality of what it will take to provide the service will be clearer when the requirements are made explicit.

V. NDF REGIONS – OBSERVATIONS AND ISSUES

The NDF is organized into three administrative areas, known as Regions: the Northern Region, headquartered in Elko; the Southern Region, headquartered in Las Vegas; and the Western Region, headquartered in Carson City.

The Regions are delegated authority and responsibility for managing the day-to-day operational activities of the Division's fire program. The Deputy State Forester coordinates the work of the three Regions and reviews their plans for fire protection. The Fire Program Coordinator is responsible for setting the program's goals and procedures relating to the fire protection program, coordinating the program with the FEMA Fire Management Assistance Program, and coordinating the mobilization and dispatching of resources.

Northern Region

The Northern Region is, by far, the largest part of the NDF's fire program when measured by geography and fire load. The Region covers over 1/3 of the state and supports 35 volunteer fire departments with minimal staffing and minimal equipment. The Region has three fire protection districts: Northeast (Elko County), Eureka County, and White Pine County. By agreement, NDF protects all lands in Eureka and White Pine Counties except the cities of Eureka and Ely. With 200-250 fires burning 25,000 to 50,000 acres per year, Northern Region resources respond to more fires than the Division's other two Regions combined.

Resources – Despite its large area, the Northern Region is the Division's most poorly funded and resourced relative to its responsibilities. It has been said that in terms of funding and equipment the Northern Region is where the Western Region was 20 years ago.

The Northern Region must do a lot with very little over a huge area. It is chronically understaffed. Its Battalion Chiefs do not get into the field much except for emergency responses. In Elko County, only 10 percent of the BC's non-emergency response time is spent in the field. There are only three Captains in the Region, all in Elko County. They work a conventional 8 to 5 schedule and are able to spend about 50 percent of their time in the field.

The Region has very long fire department travel distances and response times. NDF delivers its services in the Region primarily through volunteer fire departments. They can reach most fires within an hour. According to BLM, this system of local support is working well, especially at a time when BLM draws down its resources to meet its national fire mobilization obligations and cannot offer or needs help itself.

Seasonal Staff – There are only ten NDF full-time employees and a small number of seasonal employees to carry out the Region’s responsibilities. Historically, the Division supplemented the permanent staff with five to seven seasonal employees. In the last few years it has fluctuated between two and five.

Forest Service – The declining financial support from the Forest Service is a key issue in this region. From the NDF perspective, the original purpose of the contractual arrangement between NDF and the Forest Service appears to have been forgotten. The Forest Service increasingly questions why NDF is performing initial attack in the Forest Service jurisdiction, but the contract was created because it is not practical for the Forest Service to do the initial attack of fires in the area. For example, in the Ruby Mountains, a combination of Forest Service multiple use lands and wilderness is surrounded by private land. Four volunteer fire departments under the NDF umbrella are the closest forces, and NDF is responsible for wildland fire control on the state and private lands that directly abut Forest Service lands.

The consequence of Forest Service ambivalence toward this contractual arrangement is declining financial support. In 2003, the Forest Service payment to NDF was the same as it was in 1981 (about \$60,000), a large cut in terms of current dollars.

Exchange Zones – NDF exchanges initial attack responsibilities with the BLM in certain “exchange zones” by agreement. The Northern Region feels that this arrangement is going well, though BLM indicated they are unsure whether the arrangement will remain in its interest in the long term. According to both BLM and NDF employees, the interagency relationship/partnership tends to break down when the agencies start “splitting hairs,” particularly over financial matters. The BLM reports that a lack of clarity on NDF statutory responsibility and who is financially responsible for various responses causes tension in the interagency relationship. Despite this issue, it appears that interagency cooperation between the Northern Region and both cooperating federal agencies is generally excellent.

EMS – In the Northern Region, NDF responders are capable of providing full emergency medical service, but unlike the Division’s Western Region, they assist with EMS but are not obligated to be the primary providers. That is, if they are available, they help.

Elko County – Elko County is the fourth largest county in the continental United States, covering 17,500 square miles, but with a population of only 50,000. Elko County officials feel that it would be difficult to put together a county fire protection district for such a huge county and low density population. Consequently, they highly value their continued long-term relationship with NDF.

NDF delivers service in Elko County primarily through 15 volunteer fire departments plus mutual aid from the five municipal departments in Elko, Wells, Carlin, West Wendover and Jackpot. The Elko County service and supply budget for the Northeast (Elko) Fire Protection District totals a meager \$75,000 to support 23 fire stations and 150-200 volunteers. The budget has remained flat for three years since being cut four years ago. The fire departments report that their equipment is old, worn-out and poorly maintained and that their training is inadequate.

NDF staffs one 24-hour/7 day per week all-risk fire station at Spring Valley. It provides wildland fire, structure fire, rescue and emergency medical services. However, there is only a single firefighter on duty for two out of every three days. The rest of the time the station is staffed by two firefighters. National Fire Protection Association standards call for a minimum of four firefighters to start a fire attack in a structure fire, with two inside and two outside prepared for firefighter rescue. NDF relies on volunteer firefighter response to augment its minimal station staff to meet these standards.

Eureka County – The Eureka County Fire Protection District is comprised of all of Eureka County except the Town of Eureka. The county values its relationship with NDF and wants to continue the relationship for the “insurance policy” it offers and to continue its access to the Division’s ability to get outside help. The county/NDF relationship appears to be generally good, though county elected officials mention some problematic individual relationships with the state office, which arose over effects of the Division’s legislative audit. Eureka County hopes that the Division will resolve a handful of important issues affecting the relationship. The county feels strongly that the NDF BC assigned to Eureka County must be stationed in the county seat, not at the Carlin Camp in Elko County. County officials want much more personal contact with NDF, though they recognize that NDF would need more staff for this to happen.

NDF service delivery in Eureka County is through five volunteer fire departments plus mutual aid from two municipal departments (Town of Eureka and Crescent Valley). The Crescent Valley VFD is technically under the NDF umbrella but the relationship is problematic. Eureka County and local fire department officials feel they receive too little direct service from NDF, and that the Division staff are not around enough.

STAFFING: Like Elko County, NDF indeed is critically understaffed in Eureka County. The only presence is a single BC who is pulled in many directions. Due to administrative responsibilities, the BC can only get out of the office between one and two days per week. While the county would prefer that the BC respond to fires with an NDF engine, the Region discourages Battalion Chiefs from staffing engines. Eureka County needs additional NDF staffing, particularly in the southern part of the county where nearly 20 percent of the county's wildfires occur with no NDF staff presence.

MAINTENANCE: NDF-associated volunteer fire departments in Eureka County are running with old, worn equipment. As elsewhere, they need additional maintenance support. The independent departments (Eureka and Crescent Valley) need a firm contract. There is no agreement other than original NRS 473 agreement which has not been updated for a long time. They need an updated agreement to address the liability associated with operation of apparatus, worker's compensation, and equipment maintenance responsibilities, among other issues. Eureka County volunteers also expressed concern over radio communication system problems, including insufficient repeaters, system dead spots, and lack of cell phone coverage.

White Pine County – The White Pine County Fire Protection District (WPPFD) is comprised of all of the whole county except the City of Ely. Ely's Fire Department has a cooperative agreement directly with BLM.

BUDGET: NDF has a \$100,000 budget for White Pine County. After salaries, benefits and assessments by the Region and state officers, only \$20,000 is left to support seven fire departments. At this level, a single radio repair can break the fire district budget.

By all accounts, including the Ely Fire Department, White Pine County is not providing a reasonable share of funding for the fire district. Although this is partly understandable because the county is in dire financial straights, and anticipating further decline, the county needs to be convinced about the value of the fire protection district and the priority need to fund it.

To compound the financial problem, the process for obtaining grants is not well understood in the county. The WPPFD needs grant funding and grant opportunities are available, but obtaining them will require a more informed and coordinated effort.

STAFFING: Like the Northeast Forest Fire Protection District and the Eureka County Fire Protection District, the WPPFD is chronically understaffed. Just one NDF employee coordinates the activities of seven volunteer fire departments in White Pine County. He has been leading an effort to re-form the White Pine Fire Protection District Chief's Association. This is a positive initiative to pull the volunteer fire departments together and treat the volunteers with respect. The effort has not involved the BLM or Ely FD, reportedly for political reasons related to influence and competition. While perhaps understandable, this approach may limit the initiative's potential for success. The Region has discussed increasing its presence in White Pine County with a seasonally staffed NDF engine. Volunteer fire chiefs in the county would like the NDF BC to attend meetings, increase contact with their departments, provide or arrange for training, and maintain equipment.

TRAINING: Training is a major issue for the volunteer fire departments serving the District, and the lone NDF employee cannot keep up with the training demand. The BLM issues red cards to volunteer firefighters, but the process is reported to be sporadic and often late. The issuance of red cards should be an NDF responsibility (more discussion on the red card policy is included in the Training and Qualifications section of Chapter VIII).

The standard NWCG training curriculum courses are not proving practical for training volunteers because of their required time commitments and the limited availability of the courses. Volunteer chiefs would like NDF to tailor training to the volunteer environment with more convenient timing, location, and duration of training sessions. Generally speaking, the training needs to be taken to the departments and not centralized.

Training is not being done in a timely fashion—firefighters are not ready for fire season. NDF should ideally take advantage of the slow period at the beginning of the year to undertake training. The volunteer chiefs recognize that the Division's single employee cannot meet their expectations.

Training also has gotten caught up in the politics among the volunteers, NDF, and the Ely Fire Department. Ely FD training has openings available to volunteers, but they tend not to take advantage of the opportunity because of interagency tensions. The Ely FD Chief

believes that NDF could make more efficient use of state training resources by training together with them, which might also might be a good way to improve relations and build camaraderie.

MAINTENANCE: Maintenance support is another significant issue in this county, as it is elsewhere. Most cooperating fire departments in the county decry the poor state of the equipment initially given to them, and its subsequent frequent breakdowns. The whole Northern Region has just three mechanics to cover three large counties and dozens of pieces of apparatus. It relies on its Battalion Chiefs and Captains to make minor repairs on volunteer fire apparatus. Practically speaking, there is virtually no equipment maintenance program for the volunteers, and the mechanics cannot get to check every piece of apparatus even once a year. The maintenance situation is somewhat surprising because NDF has a brand-new mechanical shop, staffed by inmates from the Ely Conservation Camp.

Radios also have a maintenance problem. The Chiefs' Association describes radio repairs as a "black hole."

RELATIONSHIPS: The relationship between the Ely Fire Department and the volunteer fire departments is another issue with a lot of history. NDF is squarely in the middle, and is in a position to build bridges. The county's budgeting system puts the fire departments in competition. The volunteers and NDF staff view the Ely FD as a force that siphons county funds away from the WPPFD. The Chief of the Ely FD noted that the Ely Fire Department budget is established independently, and negotiation between City and county happens outside the fire department. Thus the amount of money that flows from the county to the City FD budget is outside the Ely FD purview. The Ely Fire Department perceives the county's volunteer departments as stripping their communities to support NDF operations, leaving protection of the rural communities to the Ely FD, a circumstance they believe is not adequately recognized by the volunteers and NDF. Despite the Ely FD protection to rural communities, the latter resent county funding to the Ely FD.

Regarding cooperation with the BLM, White Pine County Volunteer Fire Departments are assigned to immediate response areas, but the BLM tends to underutilize the local VFD resources and take charge itself rather than use unified command. Having out-of-area resources come in before the local resources are adequately employed tends to produce conflict.

CONSERVATION CAMP: The Ely Conservation Camp makes a large contribution to the WPFPD and its volunteer fire departments. The Camp has constructed stations, provided maintenance support, painted vehicles and completed numerous other projects. Volunteer chiefs said their departments could not have survived with the equipment they have without the Camp's support. The Camp crews also assist on incidents in the local jurisdiction.

The Ely Camp is a major subsidized resource of the fire protection system in White Pine County. The camp is also vital to the Ely Field Office of the BLM. BLM representatives noted that they rely on stable availability of crews from the camps. (Camp crew availability has fluctuated as NDF struggles with physical fitness and work capacity testing policy, crew boss qualifications, and other issues). BLM officials oppose any NDF reorganization that would isolate the camps from the fire program.

Recommendation 15: All fire departments in the Northern Region need to be systematically evaluated by the NDF state office. They have a multitude of problems and difficult circumstances that have not received enough attention.

Recommendation 16: Reconsider the current funding mechanisms in the Northern Region's three fire protection districts, with the intent of finding ways to more adequately fund the program. The current budget is woefully inadequate. The three Northeastern counties have been unable to produce an adequate level of taxation to fund a credible fire protection organization through ad valorem and consolidated taxes alone.

Recommendation 17: NDF staffing in the Northern Region needs to be increased. The Region is chronically understaffed. At a minimum, the Region requires the additions listed below. Wherever feasible, these positions should be funded from budget category 4195 (State funded). Each additional 4195 position would require a budget action item during the FY 08/09 biennial budget process. Some positions may require funding from budget category 4227 (County funded), but the use of 4227 funding should be minimized. The minimum amount of additional resources required are:

- One Captain in Eureka County to provide coverage to the north end of the county, facilitating relocation of the Battalion Chief to the Town of Eureka.
- One Captain in White Pine County to lead the seasonally staffed engine during the fire season and function as a Training Captain outside of fire season.
- Additional Regional mechanics, organized under the Regional FMO.
- Additional prevention/mitigation/outreach resources. (The current staff cannot do much prevention work, as is discussed in the Prevention Chapter.)

- Extend seasonal employees to nine month employment periods to keep them coming back to preserve the training investment in them, increase experience levels, and provide program continuity and stability.
- Provide additional Captains and firefighters to maintain at least two-person staffing at the Spring Valley station 24-hours per day/seven days per week. (This still would have to be supplemented by volunteers.)

Recommendation 18: Assign a seasonally staffed engine led by a career Captain to White Pine County. NDF needs presence in the county.

Recommendation 19: Address critical training capacity issues in the Northern Region.

This is especially needed in White Pine County. Establish interagency training teams involving NDF, local Deputy State Fire Marshals, BLM, FS, VFD, and municipal fire department personnel and implement a coordinated training curriculum in each county. The NDF is undertaking such an effort in White Pine County, and it seems like a good, innovative approach.

Recommendation 20: Obtain the services of a communications technician in the Northern Region (either an NDF employee or contracted by NDF), as done in Elko County. Provide funding for repairs to county radios; they are critical to safety and effectiveness.

Recommendation 21: Improve apparatus maintenance in the Northwest Region. The volunteer chiefs in White Pine County suggested that NDF either provide a full-time, certified mechanic in the area (an employee or contractor). However, before taking this step, the Region should assure that the Ely equipment shop is placing priority on supporting the NDF fire program and cooperating fire departments.

Recommendation 22: Build cooperative bridges to the Ely FD. Perhaps begin by encouraging volunteers to take advantage of training opportunities offered by Ely FD.

Recommendation 23: Provide information and training in White Pine County on the federal grant process. This will enable NDF and its cooperating volunteer fire departments to take better advantage of federal grant opportunities and relieve the financial problem somewhat.

Recommendation 24: Re-locate the NDF Battalion Chief to an office in the Town of Eureka. NDF has no presence in Eureka and the BC serving Eureka County is stationed in Elko County.

Recommendation 25: Reconsider the current funding mechanisms in the Northern Region's three fire protection districts, with the intent of finding ways to more adequately fund the program. The current budget is woefully inadequate. The three Northeastern counties have been unable to produce an adequate level of taxation to fund a credible fire protection organization through ad valorem and consolidated taxes alone.

Western Region

The Western Region, while not the largest or busiest, is NDF's most complex program in terms of wildland-urban interface and interagency operations. It is also the best-funded and best-equipped Region relative to its responsibilities.

The Western Region carries out the NDF fire program in four counties with a workforce of approximately 45 employees. The Division staffs three full-time year-round stations that provide the full range of services expected of municipal fire departments, including paramedic engines in Washoe County at a cost of \$1.3 million per station per year. In the area where NDF functions as a full-service fire department, it employs simultaneous volunteer response with move-up by staffed engines (and recall of off-duty firefighters when needed.) The system seems to work, though there are questions about whether it can remain viable over the long term because of a lack of qualified volunteers in adequate numbers. Some have suggested that the volunteers will transition to auxiliaries.

NDF contracts its non-wildland fire responsibilities in the Douglas County portion of the Sierra Forest Fire Protection District to the East Fork Fire Protection and Paramedic District. A similar contracting arrangement exists in the NDF portion of the Storey County FPD.

Seasonal Program – The Division supplements its permanent staff in the Region with 30 seasonal employees who staff seven Type 3 engines operating from five stations. They use staggered shifts for 7-days per week coverage across the Region. The Region typically maintains seasonal coverage from mid-May through mid-October. In the Western Region, NDF is closing the divide between its fire and resources programs with work projects completed by seasonal employees. Seasonal firefighters perform fire prevention work (including home inspections) and conduct fuels projects. NDF has been able to compete with the federal agencies for quality seasonal applicants, and has been recruiting much more aggressively than in the past.

For many years, the Western Region seasonal workforce was relatively small (about 20 firefighters) and functioned with little direct supervision. In 2002, it expanded from 22 to the present 30 employees spread over a 60-mile-long area. The Regional management wanted more direct supervision of the seasonal workforce, and has established dedicated supervision, leadership and administration, all of which had been collateral duties in the past.

The Seasonal Program Coordinator and an acting Captain oversee day-to-day operations of four engine companies in Carson City and Douglas County. Career training Captains supervise the seasonal employees in Washoe and Storey Counties. While this provided a reasonable short-term solution to a span-of-control issue, the arrangement causes problems as well.

The Seasonal Program Coordinator, assisted by the acting Captain, remains responsible for personnel, project work and overall program coordination, while the Training Captains maintain supervisory authority. Training Captains work a 24-hour shift to align with the career shifts in the three all-risk stations, but the seasonal crews do not work that shift, to enable them to do project work. Thus seasonal crews effectively have three different supervisors and a lack of continuity between shifts. NDF training Captains cannot adequately (and remotely) supervise the seasonal workforce. Some cooperators, too, noted that this arrangement is not providing effective supervision.

The Western Region is heading toward having two distinct programs and workforces—seasonal wildland and Washoe County all-risk—and an artificial separation in the organization. Organizing and supervising the Region’s seasonal wildland operation separately from the 24-hour, seven-day all-risk stations results in redundancies in supervision and management, and detracts from teamwork. NDF already has far too many variations within its fire program without creating additional distinctions within Regions and within counties.

The Western Region needs to systematically reorganize its seasonal workforce, especially considering its potential to grow further. It has been suggested that NDF appoint a single supervisor for the seasonal employees on the north end of the Western Region, working the same shift (not 24 hours) as seasonal employees. The BC/Seasonal Program Coordinator would supervise the south end.

ALL-RISK MISSION IN WASHOE COUNTY: As discussed elsewhere in this report, controversy over the all-risk mission in Washoe County is severely impacting morale and employee/management relations. The issue consumes far too much of the Division’s attention and energy, and is causing controversy that is spreading well beyond the Western Region. Issues involving annexations by the City of Reno, Verdi Station #5, and the portion of the SFFPD within Carson City were addressed in Chapter IV on interagency issues.

NDF management appears motivated to shift to a seasonal wildland fire model. It requires adequate full-time staff to supervise a larger seasonal workforce. NDF will still need Battalion Chiefs, Captains, Training Captains, and fire prevention staff.

Recommendation 26: Integrate NDF career and seasonal fire resources in the Western Region under a revised field organization chart. Integration would require a significant change in culture at the career stations. Seasonal employees are out in the field, doing projects during non-fire time, which reportedly works very well, while career firefighters stay in the firehouse waiting for calls.

Given the potential for the seasonal program to grow, it should be organized into multiple geographical areas (possibly battalions, but more likely stations) that are not under training Captains who have other responsibilities and are working shifts. One model is to have the Battalion Chief/Seasonal Coordinator with Captains (or station Captains) below him, as is currently done in the three NDF 24-hour, all-risk stations in Washoe County. Station Captains in the 24/7 all-risk stations supervise 7 people, while a single Captain in the seasonal program supervises 30.

The Western Region should staff wildland engines with a combination of career and seasonal employees. An Engine Boss who is either a full-time equivalent or career/long-term seasonal would supervise each unit. Ideally, all seasonal engines would have fully staffed, seven-day per week coverage. There are several justifications for this model. First, it is becoming less realistic to expect agencies to adequately train seasonal employees to NWCG standards in a single season, and maintain continuity in a heavily seasonal workforce. The proposed model provides for program continuity and an assurance of a professional-based workforce that meets NWCG standards. Transitioning to this organizational model would also provide a new career path for career firefighters who are transitioning out of all-risk stations, and wish to remain with NDF.

Southern Region

The Division's Southern Region is its smallest fire program. It protects a small geographic area, and has no mid-level supervisors (Battalion Chiefs or Captains) between its Fire Management Officer and firefighters.

Mount Charleston FPD – Mount Charleston is a critical watershed area for Las Vegas. It is also a popular residential and vacation retreat from the city. There are significant private, residential properties on the mountain, but no large private land holdings or properties. NDF's operation is essentially a single station protecting a small (1800 acre)

fire protection district on Mount Charleston outside of Las Vegas. The district contains 400 homes, a school, a commercial lodge, a community library, one hotel (which is technically outside of the district,) the Clark County youth camp, and a private drug treatment center/ranch.

The NDF station is staffed by two career firefighters around the clock. The Region supplements this staffing with three seasonal employees who staff a Type 3 engine for wildland fire response only (they work a day shift unless a fire requires longer hours). There are actually two NDF stations on Mt. Charleston, but one is un-staffed, minimally equipped, and has a NDF firefighter's family living in it. The Regional Manager describes the NDF role as "more of an all-risk presence."

The Forest Service also has a presence in the district, and there is a volunteer fire department associated with the Clark County Fire Department (CCFD.) The volunteer company runs an engine, rescue and water tender. Both the Forest Service and VFD equipment are housed in the volunteer station directly across the street from the NDF station. Additional volunteer stations associated with the CCFD exist nearby. The CCFD volunteers can mount a reasonably reliable daytime response and are backed up by career firefighters from the CCFD. Both NDF and the volunteers deliver primary emergency medical response, and the volunteers maintain EMT-I qualifications with transport capability. There is also a nearby City of Las Vegas Fire Department station that responds to the lower portions of the district. While there is redundancy of coverage, it seems likely that the CCFD would not leave Mount Charleston, for political reasons.

NDF struggles to provide effective all-risk emergency service to the single, small fire protection district in Clark County because it lacks the resources to provide adequate staffing and equipment, and is dependent on the county fire department for material support beyond the district's budget. Clark County subsidizes the Mount Charleston District's operation, as District tax collections only cover half of its cost. Clark County is Nevada's wealthiest, fastest growing county, which begs the question of why a highly developed and capable county fire department needs NDF all-risk support at all.

Cooperators describe a relatively difficult interagency situation on Mount Charleston between NDF, Clark County Fire Department, Forest Service and BLM (this issue is discussed at length in Chapter VI on stakeholder views).

The NDF Southern Region has difficulty delivering other than the most basic firefighting service, and cannot provide much fire prevention or training. The Region has one of the

new Fire Protection Officer (FPO) positions, who is primarily oriented to Lincoln County.

The Regional FMO is county-funded. Though he has Regional responsibilities, Clark County gets concerned when he leaves the county. The Regional manager is trying to receive state funding (4195 funds) for the FMO position. This issue is illustrative of a key problem throughout the NDF system—county funding for NDF employees who the Division needs to cover regional and interagency commitments, some outside of the county doing the funding.

The Regional Manager describes interagency relations as “hit and miss.” Other NDF employees and cooperators characterize the interagency relationships in even less positive terms. Cooperators have viewed NDF as territorial and not blending in as well as desired in a Region with an otherwise good interagency environment. The lack of satisfactory NDF interagency relationship in this area is putting strain on the fire program in the Southern Region. There are some specific operational issues (e.g. not using common communication frequencies and working separately at fires), but much of the problem is driven by personality differences.

A serious issue in the Region concerns the Las Vegas Interagency Dispatch Center (LVIDC). NDF used to participate in it, but dropped out after all-risk dispatching became a wedge issue. (It remains a significant issue for the cooperators.) The interagency view of NDF is that it entered the interagency dispatch center without providing resources or a presence, found the situation unsatisfactory, and switched support to the Sierra Front Interagency Dispatch Center hundreds of miles away. NDF now would like to get back into LVIDC, but the LVIDC Board of Directors is unclear on NDF’s direction and suggests that NDF be dispatched by Clark County, whose relationship with NDF could also be improved.

At the state office level, NDF is trying to expand its support into additional counties toward a vision of providing wildland fire protection for the whole state. In the Southern Region, this means having direct wildland fire responsibilities in Lincoln, Esmeralda and Nye Counties. The tax base in Lincoln and Esmeralda Counties could not support an NRS 473 district other than a single person operation like White Pine County or Eureka Counties, which is not effective or desirable. Nye County might be able to support a NRS 473 district.

The Southern Region Manager reports that his office is already understaffed and under-trained administratively, and that this results in their inability to keep up with all contracts and agreements. If fire responsibilities were to expand on the Southern Region, then support staff would need to expand with those responsibilities.

Though a smaller program than the other Regions, the Southern Region faces some of the same issues encountered in the others; e.g., maintenance support is insufficient. The Region has one mechanic with 65 pieces of apparatus to maintain. Also like other Regions, there is a need for more fuels work on private lands in the Southern Region, but that is not getting done now because, other than the FPO, the Region's primary resource is the small number of shift firefighters of the Mount Charleston Fire Protection District.

Recommendation 27: Obtain state funding for the Southern Region's FMO position.

Use the current Clark County funding of the FMO position for a Battalion Chief or Captain position assigned to the MCFPD. (The FMO has been reassigned from Mount Charleston to Las Vegas and there is no officer left as supervisor at the Mount Charleston station).

Recommendation 28: Hold high-level discussions between the State Office and Las Vegas Interagency Dispatch Center (LVIDC) Board of Directors to resolve the issue of NDF's future involvement in LVIDC.

Recommendation 29: Examine alternative funding mechanisms for the Southern Region's three counties remaining outside of NDF coverage (Lincoln, Esmeralda, and Nye). It seems unlikely that at least two of these counties will be able to produce an adequate level of taxation or otherwise support a credible fire protection organization using NRS 473 as the funding mechanism.

Recommendation 30: Address the administrative staffing and training issues in the Southern Region office. If fire responsibilities were to expand on the Southern Region, then support staff would need to expand with those responsibilities.

Recommendation 31: Improve maintenance support either by adding an additional mechanic for the region, contracting out, or providing additional maintenance support through the Southern Region's conservation camps. (See recommendations in Pre-Suppression chapter for the bigger picture.)

Recommendation 32: Staff the Southern Region so that fuels work may be done on private lands. Additional seasonal firefighters and possibly an additional Fire Protection Officer are needed to do this. It is unclear just how much fuel work is needed, which has to be determined before sizing the workforce.

Recommendation 33: Assure that the Southern Region's camps are able to reliably perform their critical fire support mission with adequate crew availability. This will require a change in legislative philosophy to either fund the camp program more adequately or reduce its revenue-generating work.

Other detailed recommendations regarding the Mount Charleston Fire Protection District were given in Chapter VI on interagency relations at the Regional level. Dispatch centers also are discussed in another chapter.

VI. STAKEHOLDERS' VIEWS AND CONCERNS

Having strong cooperative relationships and interagency reciprocity is a critical success factor for any fire program, and particularly for the NDF with its thin resources and in a state with large federal presence and dependence on local fire departments, too. To build and maintain such cooperative relationships, the Division must consider and respond to the views and concerns of a wide variety of stakeholders. As part of this study, NDF asked the project team to obtain candid opinions about the NDF fire program from various stakeholders, including federal cooperators, local fire departments, counties, cooperating non-governmental organizations, citizens, other state agencies, and NDF employees.

Issues and concerns expressed by stakeholders have been referenced throughout this report, but are organized in this chapter by stakeholder group to give a more complete sense of the views of each group.

When considering the input of the stakeholders, one should keep two things in mind. First, some input may reflect the perspective of the individuals interviewed, and not necessarily the group they represent. Second, people form opinions using the information they have, and sometimes that information is incomplete or incorrect. The project team tried to report only those issues and concerns reflected by multiple sources or independent research. We tried to avoid reporting rumors, innuendo, or the concerns of a single disgruntled person. For the most part, this section reports common attitudes, issues, and concerns expressed by classes of stakeholders, as represented by several personnel from, say, a federal agency, or volunteer fire chiefs. Nevertheless, some perceptions even of groups may be based on incomplete, incorrect or outdated information. When that is the case, NDF may choose either to attempt to correct the perceptions of the stakeholder(s), or take those perceptions into consideration as it formulates the fire program and works with the stakeholders day-to-day.

In a state where federal agencies manage 87 percent of the land, federal entities represent the dominant force in the interagency environment, and their views are obviously important. Cooperative arrangements between the NDF and federal agencies are especially crucial. We met with both the state and forest level offices of the two largest federal cooperators and a number of their staff in the field.

At the local level, counties and local fire protection districts are part of the very foundation of the NDF fire program. NDF regards volunteer fire departments as the primary delivery system for much of its services, and in some locations, volunteer fire departments are the nucleus of the Division's service delivery model. The perceptions of local fire department personnel are therefore also important.

The citizens of Nevada and the agencies assigned to protect their resources benefit from innovative private initiatives by non-traditional, non-agency players such as the Nevada Fire Safe Council (NFSC), and they, too, were interviewed. In this operating environment, NDF provides an important interface between local fire agencies and the federal government, and depends on a wide variety of people, organizations, and institutions that have a significant interest in the NDF mission and can contribute to it.

A complicated mission makes for complicated interagency relations, and some confusion among the stakeholders about the NDF mission. NDF districts vary in size, population, economic development, county resources, fire environment, values at risk, local fire department capabilities and political climate. Given the large variations, the Division's fire protection districts in some ways function as eight separate fire programs, as commented earlier. The views of the stakeholders reflect the diversity of relationships they have with the NDF, and the varying environment across the state. It is not surprising that the stakeholders' views vary a great deal by group, geographic location, and their level within their organization.

Views of Federal Cooperators

At the statewide management level, the state-federal interagency environment seems to be quite strong and positive overall. There are many innovative and productive interagency initiatives. At the field level of federal agencies, the degree of satisfaction varies, but overall, the state-federal cooperative arrangements are a major strength of the NDF wildland fire program.

Although federal cooperators have some specific issues and areas of concern, the top managers of BLM and the Forest Service are upbeat about cooperation among their agencies and NDF. The Nevada Fire Board guides interagency cooperation among the NDF, Forest Service and BLM, and all believe the Board is a cornerstone of interagency cooperation.

According to the Forest Service, the NDF is at an all-time high in terms of cooperative relationships at the statewide level. Their representatives noted the quality leadership and

good staff at NDF. The federal cooperators believe the current leadership is bringing the NDF back in line with its intended mission and improving interagency relations.

Mission – The federal cooperators agree that NDF has a legitimate wildland fire mission and desire the continued presence of NDF in the mix of interagency fire programs in Nevada. However, they find the NDF fire program mission unclear. They believe that NDF needs to clarify its mission, develop an organizational vision, and plan around those elements. They think that ultimately NDF should develop a statewide master fire plan, and that the plan should be linked to natural resource objectives.

All-Risk – The federal cooperators observed that the assumption of all-risk emergency services by NDF has created an overlap of effort with local government. Some federal cooperators felt that the only thing keeping NDF in Carson City and Douglas, Storey, and Washoe counties is the State's emergency suppression fund. They believe that NDF could better align itself with the missions of the federal wildland fire agencies by transitioning out of all-risk emergency services, and becoming a more traditional wildland fire agency.

Organizational Structure – The federal cooperators believe that the Division's organizational structure needs to be clarified to produce a more consistent, comprehensive fire protection system across NDF Regions. Federal representatives believe there needs to be more local supervision, elimination of inconsistent agency standards, and improved ability of local NDF field representatives to make decisions and act, with support and guidance by NDF HQ.

NRS 473 – The federal cooperators take issue with NRS 473. Unlike other western states, where the state is the single point of contact for federal agencies, the BLM in Nevada works with NDF in the eight NDF districted counties, but also must work directly with County Commissioners in the nine non-NDF counties. Both the Forest Service and BLM are becoming more aggressive about cost apportionment and billing to counties or local governments for fires outside of federal jurisdiction. This policy puts the federal agencies in conflict with Nevada counties who for years have enjoyed uncompensated BLM support for fire suppression in their county. This situation has implications for NDF and its statewide authority and role. For these reasons, the BLM supports the concept of a fully implemented statewide authority for the NDF. None of the federal cooperators support turning wildland fire protection in NRS 473 districts served by NDF over to local entities.

Dispatch – From an interagency cooperation perspective, the federal cooperators believe that the NDF all-risk mission complicates and dilutes the function of the interagency dispatch centers. For example, the Sierra Front Interagency Dispatch Center

(SFIDC) at Minden is organized functionally, not by jurisdiction. However, because of established patterns associated with the NDF all-risk function, NDF Battalion Chiefs go direct to the NDF dispatchers on wildland fires because they are used to working with those dispatchers during non-wildfire incidents. According to several people, this situation has led at times to duplicate resource ordering, and extra costs for the federal cooperating agencies ultimately incur. In the Elko dispatch center, federal cooperators believe that the NDF brings an unfamiliar all-risk workload with them but does not contribute the resources required to address that workload. In Las Vegas, disputes over all-risk dispatching led directly to the Division's sudden withdrawal from the Las Vegas Interagency Dispatch Center (LVIDC), a move that has harmed interagency relationships. However, since this study began, the NDF has made strides toward rectifying the all-risk dispatch issue and repairing the interagency relationship.

Mobilization – The Division's federal cooperators agree with local cooperators that there is an unfilled need for a system for statewide and interstate mobilization of local government resources. The system might be like that of the California OES rather than the current interagency dispatch system. Most federal agencies believe that the state could assign this responsibility to NDF or DEM or handle it as a joint responsibility. As noted earlier, NDF has taken the lead to improve mobilization and dispatching.

Resource Management – The federal cooperators believe that NDF needs to strengthen its resource management program and integrate it further with the fire program to put even more emphasis on fuels management and wildland-urban interface mitigation on private lands statewide. Federal agency cooperators believe that NDF and local government should complete the National Fire Plan "community at risk" assessments, and that this is a vital mission for the NDF. The Nevada Fire Board, acting through the Nevada Fire Safe Council, planned to begin this process by conducting county-by-county assessment beginning in April 2004. It planned to assess hazardous fuels on private lands, evaluate county capacity regarding their reliance on federal and state agencies, and provide a basis for an interagency strategic plan.

Conservation Camps – The federal cooperators are highly supportive of the conservation honor camp program and believe that the camps provide vital resources to the interagency community. The federal agencies believe that the camp program must continue and preferably be expanded, regardless of the NDF mission in other areas of fire protection.

Aviation – Stakeholder views and concerns regarding the NDF aviation program and specific recommendations regarding NDF aviation resources appear in the discussion of air operations in Chapter VIII.

Equipment – The Division's federal cooperators observed that the age, condition, and maintenance of NDF equipment is a serious shortcoming, and reflects the Division's lack of resources. The cooperators believe that NDF relies too much on Federal Excess Property, as do the NDF-associated volunteer fire departments.

Financial Issues – Differences between the NDF and its federal agency cooperators on financial issues have complicated the interagency relationship in the past. Money has constantly flowed back and forth between the NDF and its cooperators, a process that other states have eliminated. County funding of NDF complicates these relationships even further.

Unlike other state cooperators who usually have 12- or 24-hour reciprocal grace periods, the NDF/BLM agreement has contained a \$1,500 threshold: the BLM begins to compensate NDF after NDF has expended \$1,500. This proves to be problematic, particularly in the Western Region, because NDF usually exceeds the \$1,500 threshold almost immediately. The federal cooperators have had to pay for NDF resources that federal agencies in other states receive from cooperators at no cost for the first 12-24 hours. Financing has been a particularly uncomfortable issue when NDF responds on automatic aid with the Carson City or Reno Fire Departments, even though Carson City and Reno have their own direct agreements with BLM.

For the federal cooperators, NDF resources seem expensive. Some BLM employees believe this results from the NDF 24-hour all-risk staffing and subsequent back-fill needs.

Fortunately, the NDF is working on new Master Agreements with both the Forest Service and the BLM that remove the \$1,500 threshold and establish a 12-hour reciprocal grace period that limits compensation to the resources listed on the dispatch run card. These agreements will go into effect in 2004.

Sierra Front Wildfire Cooperators – Federal cooperators regard the Sierra Front Wildfire Cooperators as a national model for cooperation, and believe that the model should be applied in Nevada to Clark and Elko Counties.

Volunteers – The Forest Service and BLM believe that, in general, the state's volunteer firefighters are adequately trained and equipped. This is a notable difference from federal attitudes about equipment and training of volunteers in some other states. (Volunteers in the NDF Northern Region disagree with the federal perception, as discussed later in this chapter.)

Dispatch Support – Because its staff resources are limited, NDF does not have procurement, support dispatching, and logistics capability to augment SFIDC or Elko

Dispatch for extended attack fires or extended fire situations. This gap requires the cooperators to provide procurement, contracting, and fulfillment services for NDF. According to the cooperators, the NDF does not always acknowledge the impact of this support on the cooperators' local operations. They believe that NDF needs to develop capabilities and contribute personnel to the support dispatch function when it has extended attack fires or extended fire situations. The NDF has assigned a seasonal employee to this role in the past, and could continue doing so.

Views of Other State Agencies

Officials were interviewed from the Nevada Division of Emergency Management (DEM), the Nevada State Fire Marshal's Office (SFM), and the Nevada Department of Corrections (DOC), which interact with NDF to varying degrees.

Emergency Management – DEM had a satisfactory view of its working relationship with the NDF. Their operations manager's co-location with NDF seems to work well and provide a real asset.

State Fire Marshal – The State Fire Marshal sympathized with the challenging role of the NDF, but said his office did not have much of a direct role in wildland fire programs. [Editorial note: This is unlike, say, California, where the wildland program and Fire Marshal's Office have been integrated in the last decade; it is not clear whether that concept will prove to be more effective, and we have no recommendation on it yet.]

Corrections – NDF obtains firefighting crews from the state's corrections system. NDF and the Department of Corrections establish and operate, under legislative approval, the labor-intensive work camps known as Conservation Camps. Trained, low-cost inmate crews, readily available from NDF facilities, have become an essential component of the NDF fire program. Consequently, an effective cooperative relationship between NDF and DOC is essential,

The relationship between NDF and the DOC is at an all-time high. The agencies enjoy a cooperative relationship with few contentious issues. According to the DOC, the relationship is much improved over the past. The relationship had been improving over several years, but improved substantially under the current NDF administration.

According to the DOC, the working relationship between NDF and DOC is good from top to bottom. They attribute much of the improvement to NDF staffing and training. In the past, NDF struggled to manage inmates adequately. According to the DOC, their performance has improved dramatically. DOC has had only one serious incident

involving NDF personnel in recent memory, and NDF dealt with the issue decisively and effectively according to DOC.

DOC leadership is highly satisfied with the State Forester-Firewarden, Deputy State Forester, and their staff. DOC believes that a generational or cultural change has occurred at NDF, and that things will continue to function well and improve.

DOC staffs its 150 inmate camps with only 13 personnel, which they regard as quite minimal. For this reason, it is highly important to DOC that the inmates are active, working, and away from the camp on projects supervised by NDF.

DOC sees the training that NDF provides to its employees who work in the camps as adequate (though the TriData study team found that NDF does not have adequate resources to train those personnel.)

DOC also believes that the training NDF is providing to the inmates seems adequate; they are not experiencing unnecessary accidents, injuries or other safety issues.

Views of Local Fire Protection Districts

The number and type of local government entities with which the NDF interacts in any given district range from two well-established agencies, as in the Mount Charleston and Storey County Fire Protection Districts, to dozens of small volunteer fire departments, as in the case across the Northern Region. Each additional local department requires personal and professional relationships that must work well for interagency cooperation to succeed.

The sections below discuss statewide issues from interviews at the local level, and then issues specific to particular NDF Regions.

Common Local Issues – There was considerable concern and skepticism over the NDF-directed nature of this study in more than one Region, instead of welcoming it. Although local fire chiefs believe the NDF must hold itself more accountable to its local government cooperators, and this type of study may assist by documenting the issues and suggesting solutions, they were still skeptical.

The following local issues were found in at least two of the three Regions.

Overall NDF Role – Nearly all local cooperators agree that NDF should have a critical role in the statewide fire protection system, and be the leaders on statewide fire issues. Nearly all agree that the NDF role includes augmenting local wildland fire response and providing extended attack, large fire support, and incident management as part of a clearly defined NDF fire protection system. However, not all local government representatives believe that the NDF has a clearly defined fire protection system. Like their federal counterparts, local cooperators believe that NDF needs to establish a clearer strategy and communicate its intentions, including its mission and vision, to its employees and cooperators.

Overall, local government cooperators see the NDF role in the future as the following:

- Focusing on rural Nevada,
- Coordinating local government resources and mutual aid statewide,
- Maintaining an appropriate revenue stream (commensurate with the NDF mission),
- Contracting services out to local government agencies when practical,
- Performing as the FEMA liaison,
- Mitigating and reducing hazardous fuels, particularly in the wildland-urban interface,
- Administering grants (e.g., the National Fire Plan),
- Administering the Conservation Camps, and
- Providing support to fire initial attack with state-operated helicopters, though there was not a consensus regarding this responsibility. Stakeholder support was dependent on the perceived management, reliability, and safety of the air operations.

NDF Role in 473 Districts – Across the state, local government cooperators said they found the NDF mandate and “legitimate” role in NRS 473 districts unclear. Stakeholder views might be characterized as confusion over authority, jurisdiction, and the NDF relationship to the County. They believe that NRS 473 authorizes the NDF to provide service, but does not clearly assign jurisdiction or responsibility. The appropriate

separation between the Board of Commissioners as governing body and the NDF as contracted administrator and provider of service is of particular concern.

Working Relationships – Local fire chiefs believe that NDF does not adequately foster its working relationships with them, which hinders the ability to resolve mutual issues. State-local relationships have suffered from a combination of forces, especially the questions regarding the NDF all-risk function, and the problem with NRS 473 as a funding mechanism. As mentioned earlier, NRS 473 produces the unintended consequence of financially pitting NDF against local agencies with whom they cooperate. There is growing sentiment in the 473 districts that NDF either provide more value (such as newer equipment; consistent 4-person engine staffing and less dependence on automatic aid) to their fire protection districts or find a different mechanism (such as the State General Fund) for funding the NDF fire program. Local fire chiefs believe that NDF underestimates the locals' political influence and ability to bring legislative focus on what they perceive as NDF shortcomings.

At several locations, local government cooperators noted solid interagency cooperation at or below the Battalion Chief level. In places where this was not true, relations between NDF Battalion Chiefs and local government players tended to break down either because NDF had spread its personnel too thin and direct service to fire departments had suffered, or personality conflicts have developed unabated by management. Many local government cooperators cited difficult organizational relationships above the Battalion Chief level and problems with an NDF management structure they believe interferes with effective inter-local cooperation.

The local cooperators describe situations in which the NDF State Office has become involved in inter-local issues in ways that the cooperators regard as inappropriate. Most often this occurred when NDF personnel and their local cooperators were attempting to resolve some local issue. The State Office's involvement often was necessitated by the local staff's inability to resolve the issue. The inability to resolve the issue locally often was the result of inadequate NDF staffing at the local level or the disarray created by the state laws and districting system governing the Division. So, at the bottom-line, local cooperators frequently experience the State Office only under negative circumstances, and consequently their dealings with State Office personnel often have been negative.

Written Agreements – Across the state, local government cooperators raised issue with the state of the written agreements between the NDF and their departments. In many cases, original agreements forming the NRS 473 district, signed 20 to 30 years ago,

provide the only written agreement between the Division and a cooperating fire department. Local fire chiefs often cited the need for updated agreements that address specific responsibilities, such as equipment maintenance, operator liability and worker's compensation insurance, among other issues.

Grant Funds – Access to National Fire Plan grant funds represents a vital interest to NDF-associated fire departments, particularly smaller, poorly funded departments in the Northern Region. In many cases, grant funds provide the only funding available to accomplish more than subsistence. The cooperating fire departments expect NDF employees to be informed on National Fire Plan grant funding and application procedures, and to provide aggressive, proactive support in grant seeking.

Mobilization – Local chiefs reported a serious need for a better statewide mutual aid mobilization system, with NDF as coordinator. They believe that statewide mobilization of local resources and the management of a statewide mutual aid system should be guided by NDF leadership.

Western Region – In the Western Region, relationships with local cooperators have suffered from a combination of forces. First, NDF has encountered a strategic turning point in the Sierra Forest Fire Protection District (SFFPD). In addition, NRS 473 has failed as an adequate modern mechanism for funding the NDF.

NRS 473 was designed to take advantage of the federal Clarke-McNary Act, first established in 1924. The Clark-McNary Act provided authority for the federal government to cooperate with states in forest fire control and authorized Federal assistance and grants to states for forest fire control.

In 1978, Section 2 of the Clark-McNary Act was superseded by Section 7 of the Cooperative Forestry Assistance Act (PL 95-313), which provided for the federal government to provide technical assistance and grants to states for of wildland and rural fire prevention and control.

In 2001, the National Fire Plan again reconfigured federal grants to states for purposes of wildland and rural community fire prevention and control. While federal grants continue to provide substantial funding to state natural resource agencies and their local fire department cooperators, the stability associated with Clark-McNary funding no longer exists. NRS 473, the primary mechanism by which the NDF provides service and is funded, was designed to take advantage of federal funding that essentially no longer exists.

Consequently, NRS 473 has created a system by which a State agency is funded via local tax bases. Unfortunately, the NDF works in several counties and is needed in others where the local tax base can only support the most minimal fire program. Funding for a State agency is subject to local control and resistance to raising taxes to a level necessary to fund a credible fire protection program. This has led to the huge disparities between and within NDF Regions, and the NDF often finds itself in competition with the local agencies with whom it is expected to cooperate.

The Western Region is urbanizing. Agencies of local government have developed substantial capabilities and have encroached on historical NDF jurisdiction. NDF interacts in this Region with highly capable career and combination career-volunteer fire departments. Conflicts have developed as agencies compete for mission and funding, which is reflected in stakeholder views from Carson City and Douglas, Storey, and Washoe Counties.

Some local government agencies in the Western Region are beginning to suggest that they can provide service equal to what they receive from NDF at the same or lower cost. Historically, the “insurance policy” of state emergency funds has kept the forest fire protection districts allied with NDF. However, some in local governments here say they are willing to chance having to cover a portion of large fire costs. The “insurance policy” argument for remaining allied with NDF is losing its influence. However, the Division’s federal cooperators do not favor devolving jurisdiction for wildland fire response to local government in SFFPD, recognizing that escaped wildland fires in SFFPD immediately run onto federally managed lands.

All-Risk Role – Local government cooperators in the Western Region believe it is time for the NDF to devolve all-risk emergency service responsibilities to local government. The fire chiefs believe that NDF is not capable of continuing to provide effective all-risk emergency service, as it is increasingly difficult to keep up with the demanded service levels, increasing training needs, necessary staffing levels, and staffing depth.

Fiscal Accountability and Revenues – Local government representatives in the Western Region believe that NDF does not hold itself fiscally accountable to elected county officials. Some believe NDF carries an excessive management structure that duplicates administration and incident command at county expense. Despite comments from some stakeholders about over-staffing, the NDF management feels it is responsibly staffed overall, and actually understaffed both administratively and in critical incident command positions, and we concur with this.

A surprising number of the people interviewed believe that NDF collects taxes in the Washoe County portion of SFFPD beyond its program needs. Conventional wisdom is that the Division either pays into state reserves without limit, or subsidizes NDF program elements not needed in SFFPD with reserves built from county *ad valorem* tax collections. Our examination of NDF budget records does not seem to bear out this opinion. However, the data and level of analysis available for this study do not allow for being conclusive. Respondents cite as examples the costs for positions, including administrative positions that primarily attend to “state business,” Fire Management Officers that “should be state funded” and shared Battalion Chief positions that appear redundant with county or fire department resources.

A common view at the local level is that the Division cannot transition out of the NRS 473 district revenue generated from SFFPD without creating an unacceptable impact on the NDF State Office budget—either a new revenue stream or a substantial reduction-in-force at the State Office. Fire chiefs in the Western Region believe that NDF is dependent on this inappropriate revenue stream and that the agency is revenue driven. These stakeholders believe that revenue, rather than strategy, drives the NDF mission. They express great frustration over their inability to get accurate accounting of where county money is going. In Carson City and Douglas, Washoe, and Storey Counties, there is consensus among fire chiefs that NDF must provide more value to their fire protection districts or find a different mechanism for funding the NDF fire program.

Chain of Command – In counties where NDF contracts all-risk emergency services back to local entities but retains responsibility for wildland fire protection, local fire chiefs believe the lines of supervision and reporting for NDF seasonal engines are unclear, remote and inconsistent. District chiefs appear to prefer day-to-day supervision by an NDF Captain in the local station or by a fire protection district officer. This issue reflects a Division-wide lack of resources at the service delivery level. Since the start of this study, the NDF began discussions for correcting this issue.

Southern Region – NDF is nearing the same decision-point in the Southern Region as it faces in the Western Region – whether to continue providing 24-hour/seven-day per week all-risk emergency service. NDF struggles to provide effective all-risk emergency service to a single, small fire protection district in Clark County. NDF lacks the resources to provide adequate staffing and is dependent on the Clark County Fire Department for material support. Clark County subsidizes the district’s operations because tax collections only cover one-half of the Division’s cost of service. Stakeholder views in this Region reflect the issues that center on that single responsibility and the personality conflicts that

have developed. Clark County could assume the all-risk emergency service mission at nearly any time, but chooses not to out of convenience and as a cost-saving measure for the County.

Northern Region – Unlike the Western and Southern Regions, local government cooperators in the Northern Region said they cannot envision a day when NDF will be able to transition from its current involvement in all-risk emergency services in Elko, Eureka, and White Pine Counties. They cite economic conditions and development, population trends, and demographics that prevent their counties from evolving their emergency services beyond the current capacity. In one county, rural fire chiefs indicated that just redeveloping an emergency services communications infrastructure would prove beyond the county's means.

However, these cooperators still desire improvement in the resources that NDF commits to the Region to augment their fire department response, and significant enhancement of the level of service provided by the NDF to local fire departments. NDF was said to be chronically understaffed and under-funded in the counties served by the Northern Region. The stakeholder views from Elko, Eureka, and White Pine Counties reflect this.

Volunteer Utilization – NDF-associated volunteers in the Northern Region feel underutilized in the interagency fire system. Volunteer chiefs believe that neither federal cooperators nor the NDF make good enough use of the volunteer resource. Issues related to the quality of equipment, training, possession of red cards, and physical fitness may be holding volunteers back from participating more. The local cooperators want these issues to be addressed by the Division.

Equipment – Equipment issues were among those most frequently mentioned. The average age of apparatus provided to Northern Region volunteers was said to be 32 years. The state was said to have last purchased fire apparatus for Elko County in 1986 or 1987. Almost all equipment provided by NDF is FEPP. The fire departments say that much of this excess equipment is in poor repair when delivered, and breaks down frequently. The condition, maintenance, and replacement schedule of NDF equipment are serious shortcomings. The Region's three mechanics, even augmented by Battalion Chiefs and Captains, cannot keep up with the demand for timely repairs.

Radio System – Local cooperators cited concerns over the quality of the radio communications system. Repeater systems are unreliable. Significant dead spots exist in radio system coverage, and cell phone coverage is lacking as an alternative. Local fire departments also complain that they lack adequate access to radio repair services. Radio

quality affects the efficiency and effectiveness of operations, and the safety of firefighters.

Views of County Officials

County officials in Elko, Eureka, and White Pine Counties spoke of the vital importance of the NDF fire protection program in their counties. Elected officials and their staffs said they depend on NDF and its services, and desire NDF not only to continue but also enhance its presence in their counties in the future.

Value for Money – While officials expressed appreciation for the support given by NDF, some were not satisfied with the level or quality of the service provided. Officials and their staffs expressed frustration, and question whether they are receiving full value in return for their citizens' taxes. For example, they share concerns expressed by volunteer fire chiefs and NDF employees regarding the age, quality, and maintenance of the equipment placed in service by NDF. The equipment is often old, with frequent breakdowns. They reported an inability to obtain repairs through NDF, and expressed a need for replacing and updating their equipment. (However, it must be mentioned that under NRS 473, funding and operating a fire district is supposed to be a shared responsibility between State and local government. The NDF and the County share the responsibility for equipment repair, maintenance and replacement. NDF funding is not nearly adequate for it to accept sole responsibility for the adequacy of local fire equipment.)

Funding – Elko, Eureka, and White Pine counties have elected to fund the operation of their NRS 473 fire protection districts from county general funds. In each case, limited county financial resources and local priorities have perpetuated chronic under-funding of these fire districts. Officials point to their counties' inability to provide additional funding, and justify their use of the general funding mechanism as being more flexible, providing more control, and appropriate for politically conservative counties with pressing economic problems.

Written Agreement – Like the fire chiefs, county officials took issue with the status of their written agreements with the NDF. In many cases, a 30 year-old agreement forming the NRS 473 district was all they had. Like local fire chiefs, county officials cited the need for updated and regularly maintained cooperative agreements and operating plans that clarified responsibilities and provided for accountability to carry out the responsibilities of each party.

Communications – While county officials were generally supportive of the Division, and cited good cooperative relations, nearly all thought NDF should substantially improve its communication with the volunteer fire departments and needed to refocus on being a responsive organization that carries through on its commitments.

Recommendation 34: *NDF should review and revise as necessary all cooperative agreements with local government cooperators and maintain cooperative agreements with federal cooperators.* Conduct annual operating plan meetings to review and maintain the agreements.

Views of Non-Governmental Organization Cooperators

The two major Non-Governmental Organizations (NGOs) interviewed were the Nevada Fire Safe Council (NFSC) and University of Nevada–Reno Cooperative Extension (UNR). Both play important roles in fire prevention and mitigation, as will be discussed in the prevention chapter. They also represent citizen stakeholders (especially the NFSC).

Nevada Fire Safe Council – The Nevada Fire Safe Council arose out of a 1999 post-fire season conference in Carson City. It is an advocate for protection of wildland-urban interface communities. In 2000, the Council formed a 501(c)3 not-for-profit corporation that was initially funded with a BLM (National Fire Plan) grant. In response to an anti-government bias among many people in Nevada, the Council's organizers deemed it best to remain a neutral, private entity not directly associated with government agencies.

NFSC is a membership corporation with roughly 400 members, most of whom are individual property owners. The membership elects a Board of Directors. The executive coordinator serves at the pleasure of the board.

The council functions as an advocate for protection of interface communities. Its purposes and functions are to:

- increase community protection,
- provide education/outreach in communities at risk,
- advocate (to agencies) on behalf of interface communities,
- help communities assess their fire problem,
- help communities write grant applications,
- administer and distribute a BLM-awarded block grant, and

- serve as a pass-through grant holder.

NFSC regards the NDF service forestry programs as vital partners to its own efforts, and views the cooperative relationship as a strength of its own program. However, according to NFSC, there is a need for better overall coordination of mitigation planning in Nevada, and a need for processes and procedures that join individual agency prevention and mitigation efforts together into a more cohesive effort. The Council envisions an integrated interagency effort with the same level of cooperation as exists in fire suppression.

The Nevada Fire Board asked NFSC to complete a statewide county-by-county assessment that will result in a wide array of projects. NFSC said it needs firm commitments of support for this effort from NDF, the Forest Service, BLM, and local fire protection districts. NFSC envisions that it will eventually expand to all 17 counties statewide. If it does there would not be enough NDF personnel to support the demand. Other options include use of consultant foresters, contractors, and other agencies. However, even with such contracted support, an expanded statewide NFSC program still would require additional NDF resources, including additional service foresters to assist property owners with project implementation and administration.

The council also expressed the need for a single statewide mitigation and prevention point-of-contact, and suggested that it can fill this role. This approach has precedence in other states, where state "Keep Green Associations" played a central fire prevention role.

BLM and NDF have implemented a joint application for suppression-related grants that is highly popular with the grant applicants; this approach could provide a model for mitigation grants as well. However, NFSC believes that NDF needs help with its grant administration and facilitation, and recommends that the state provide an assistant for the NDF fire grants coordinator to better assist grant applicants.

NFSC wants NDF to cooperate with them in the spirit of a partnership. In the NFSC's view, the Division sometimes retreats to a bureaucratic, regulatory response when faced with issues such as grant implementation and grant matching and clarification, rather than functioning as a partner. According to the NFSC, this has, at times, impeded the relationship between NFSC and NDF from being as effective as it might be.

University of Nevada, Reno (UNR) Cooperative Extension – The purpose of the University of Nevada–Reno Cooperative Extension is to identify pressing natural resource issues and developing educational and outreach programs to address them. UNR Cooperative Extension works closely with Sierra Front Wildfire Cooperators.

NDF has helped fund some innovative efforts of UNR Coop Extension and the Nevada Fire Safe Council, including an educational publication entitled *Nevada Burning* and a series of community workshops. This type of multi-agency approach is viewed as highly desirable, and cooperators believe that the NDF relationship with UNR Coop Extension and the Nevada Fire Safe Council would benefit from even more cooperation.

Like some other cooperators, UNR perceives that low morale among the NDF staff affects their dealing with others. NDF has not been adequately responsive to customer needs, including basics like returning phone calls. BLM is perceived by UNR as easier to work with on administration of grants.

Collaborative work between UNR and the NDF Northern Region has been especially good. NDF has helped fund some UNR efforts there, and UNR is appreciative.

Recommendation 35: Enhance the NDF mitigation grant administration capability.

Facilitate and speed-up the grant application and grant-making process. Examine the NDF/BLM joint application process for suppression-related grants, and use it as a model for mitigation grants. Consider unifying NDF and BLM application processes for National Fire Plan fire mitigation grants.

Views of NDF Employees

Many NDF employees believe that NDF accomplishes a lot with minimal resources. Even those who have differences with the agency's management maintain a pride in NDF. In turn, the Division's cooperators often cited NDF employees as its greatest strength. During the study we met many energetic, committed NDF employees. Considering the Division's limited resources for its complex mission and the pressures it faces, one must marvel at what the NDF has been able to accomplish.

Morale – Despite the positive aspects, NDF faces a serious employee morale problem that may impact the ability of management to move the agency forward effectively if not addressed. Considering the Division's many successes, we were surprised at the number of discontented people encountered at various levels of the organization, including some filing grievances or bringing suit against the agency.

Employee morale seems related to the lack of a clear strategy for the future and a lack of adequate communications between management and employees. Both are areas in which NDF can readily improve.

Evolving Mission and Vision – Over a period of decades, the NDF fire management mission has evolved in response to a variety of needs perceived internally and by external

stakeholders. NDF faces a strategic crossroads regarding its all-risk emergency services mission, and the potentially affected employees say they have little information to guide their personal decisions. They do not know where their organization is headed, and the strain is showing. Morale is particularly low among career all-risk emergency service personnel in the Sierra Forest Fire Protection District. Employees there believe there is a lack of understanding and management support for the NDF all-risk mission.

The perceived lack of strategic direction and the impact it has on employee morale stems in large part from a structural weakness described elsewhere in this report. NDF is a state agency that in part is governed by local government; and this relationship leads to confusion and conflict. County commissioners, serving as fire district board, are often in a decision-making role over matters directly affecting NDF employees.

Several NDF employees potentially impacted by the Division's plans in the Sierra Forest Fire Protection District expressed concern that NDF is engaging in political gamesmanship with the City of Reno. Employee futures are at stake and management is not communicating, but instead politicking, they said. Affected employees believe that the Division must either perform the all-risk mission well and provide it with management support, or get out of the business sooner rather than later. Most career firefighters serving the SFFPD, from the Battalion Chief level down, prefer that the NDF remain an all-risk emergency service agency. However, they also believe that the NDF all-risk service has declined in quality.

Some career firefighters in all-risk stations perceive a loss of identity. On the Sierra Front, a number of career Battalion Chiefs, Captains, and firefighters are biding their time, hoping to go to work for the Reno Fire Department or Truckee Meadows Fire Protection District. One might even say that psychologically these employees have already departed. However, other NDF firefighters say, "I can live with change if I can understand it and be part of it. I don't have to agree with it," evidence of the need for open and effective communication between NDF management and its employees.

Like many cooperators, NDF employees also believe the Division lacks a comprehensive, unifying vision for the organization. Employees below the upper echelon of the State Office feel they lack a sense of clear and unifying organizational vision for the NDF fire management program as well.

Inadequate Funding for Mission – As noted earlier, NDF resources vary dramatically from district to district and region to region. Consequently, the NDF fire program is segregated into "haves" and "have nots." The inequities impact employee morale, especially in the "have not" areas. Employees are under pressure, especially from

local cooperators, to provide services they cannot provide because of inadequate resources.

Internal Communications – Employee morale seems to suffer from a lack of adequate, meaningful, two-way communication between management and employees. Some NDF employees described the agency's management as secretive, non-communicative, and unlikely to share information. The Division's communication issues and strategic issues are closely coupled. NDF employees lack a sense of organizational vision and want to understand what is happening in several strategic areas. Most prevalent are concerns over the future of the NDF fire mission and the future of all-risk emergency services.

Camp Program Influence – A surprising number of people at several levels of NDF remarked that NDF managers who come out of the camp program after having dealt with inmates for much of their career tend to treat people like inmates. One might find this a facetious comment if it did not have serious implications for the organization, and if it were not expressed as a truism by so many.

Accountability/Bureaucracy – A number of NDF personnel said that their agency does not resolve important issues quickly enough, leading to a perceived lack of accountability. Employees describe a work environment where policies remain in flux and policy changes are not being effectively communicated. Others describe inequities and unfulfilled promises concerning issues regarding pay and responsibilities between disparate districts.

Other employees, typically in field-level positions, felt that rather than too little accountability, the NDF was increasingly rule-driven and bureaucratic. Increasing administrative duties keep employees from their direct service provision responsibilities, and bureaucratically separate employees from the critical roles of directly serving volunteer fire departments and providing the interface between local and federal agencies. Several local and federal government cooperators share this perspective and said that the NDF is losing its touch with their departments. As previously mentioned, under NRS 473, operating a fire district is a shared responsibility between State and local government. However, the concern here is not so much over the accomplishment of tasks, but the inability to establish, build and maintain effective relationships between the NDF and its local cooperators. NDF employees, who are increasingly committed to administrative tasks, seem less valuable to local fire departments than they have in the past. This perception seems to stem primarily from chronic NDF understaffing (particularly in the Northern Region).

Cooperators' Views – While one might dismiss some of the above concerns as those of disgruntled employees resisting change, many comments heard from employees about NDF employee-management relations were similarly perceived by the Division's cooperators. Several cooperators observed that NDF needs to train and support its employees better. The cooperators complain of inadequate supervision of NDF personnel, but both employees and cooperator personnel also decry the previously mentioned micro-management that interferes with inter-local cooperation and reciprocity, thereby weakening or damaging cooperative relationships. While these two perspectives may seem mutually exclusive, they reflect the combination of having remote and somewhat detached management and supervision, stemming in part from a lack of sufficient supervisory and management personnel, combined with centralized decision-making by personnel who are not sufficiently in touch with local circumstances.

Health and Wellness – Recently the Division decided that it required a health and wellness program, based on a recommendation from the Department of Administration – Risk Management Division. Considerable organizational energy was put into developing such a program. Some employees commented that they thought the plan had not yet been fully implemented and had not yet reached the majority of the employees.

Recommendation 36: Establish a formal human resources function in the NDF. Retain a qualified, professional human resource manager and implement comprehensive human resource management system. This position should be funded from the State General Fund as soon as possible.

Recommendation 37: Ensure that all employees are aware of the Division's health and wellness program and its intent.

Recommendation 38: Contract to develop and implement an aggressive supervisory and leadership training curriculum in the NDF. Invest in leadership development for the organization, and make participation mandatory for all employees with supervisory responsibilities.

Recommendation 39: Develop a communications plan for NDF, and undertake immediate efforts to open better lines of communication between the NDF State Office and its field personnel. The plan should include how to get information to the various stakeholders and cooperators to avoid misunderstandings and ill will caused by lack of information or misinformation. There is also a need to communicate better with NDF employees, with the same outcomes in mind. There is also a need to encourage NDF employees to be more friendly and responsive when representing the agency and interacting with cooperators. The Division's employees must communicate effectively to gain support and understanding for NDF's tough job, and stimulate the cooperators to support funding and authorization for NDF. Lines of communication need to be expanded with employees likely to be affected by a new strategic initiatives, particularly those involved with the Division's all-risk emergency services.

VII. FIRE PREVENTION AND MITIGATION

This chapter reviews the Division's fire prevention and hazard mitigation efforts, including extension education, community risk assessment, hazard fuels mitigation, forestry assistance, mitigation grants, and cooperative relationships. The chapter describes challenges facing all fire prevention programs, provides an overview of the fire prevention programs of NDF and its cooperators, and makes recommendations for improvement.

National View

The wildland fire prevention and mitigation disciplines have recently enjoyed new national attention acceptance and support with the advent of the National Fire Plan. This trend defies historical patterns: Ben Franklin's dictum that an ounce of prevention is worth a pound of cure is widely quoted, but fire agencies have rarely implemented it adequately at any level—national, state, or local.

Prevention Works – Fire prevention usually is one of the first items to be cut in budget crunches, despite much evidence that a modest investment in wildland fire prevention produces major returns in lower wildland suppression costs and reduced losses.¹⁶

There is considerable data demonstrating the cost effectiveness of fire prevention programs. Hundreds of jurisdictions have demonstrated statistically that well-developed programs aimed at children and adults have produced reductions in fire frequency and fire losses. Fire prevention programs are relatively inexpensive. A review of successful fire prevention/education programs found that a wide variety of creative approaches worked. The successful programs usually had clear messages, well-defined target audiences, and champions to promote the programs.¹⁷

Though much of the statistical evidence of fire prevention success comes from municipal fire departments, many successes have been recorded in wildland fire prevention

¹⁶ Research on international comparisons has found that European and Far Eastern nations spend and do more proportionally in prevention than the United States, which is a major factor in our higher losses and higher costs of fire protection. See *International Concepts in Fire Protection* series, Philip Schaenman, et al. TriData Corporation, Arlington, Virginia, 1984 and 1992.

¹⁷ See *Proving Public Fire Education Works*, Philip Schaenman, et al. TriData Corporation, Arlington, Virginia, 1990.

programs, too. For example, the State of Nebraska demonstrated the value of its wildland fire prevention program in both wet and dry years. Norwood, Massachusetts, cut its annual incidence of grass and brush fires by 88 percent in eight years with a community-wide program that targeted both adults and children. The Smokey Bear program is believed to be the primary reason that abandoned campfires now account for less than five percent of all wildland fire starts.

Fire prevention in some respects has worked all too well for wildland fires. Smokey Bear and other prevention efforts reduced wildland fires beyond the extent now thought beneficial to the ecology of wildlands.

Prescribed Fire and Fuel Treatment – The modern fire management system relies not only on preventing ignitions but also on pre-fire mitigation efforts – the use of prescribed fire and mechanical fuel treatment to reduce hazards, help regulate the timing and size of future wildfires, and restore the role of fire to the landscape.

Past attempts at excluding fire altogether have created problems, including unnatural build-up of fuels, increased susceptibility to insects and diseases, significant changes in the structure of vegetation, and losses of valuable wildlife habitat for species dependent on post-fire vegetation. Wildland management agencies have begun to balance their fire suppression programs with a greater emphasis on fuel treatment and prescribed fire programs.

In order to use prescribed burning, resource management agencies need to develop understanding among resource professionals and the public regarding the importance of prescribed fire for achieving land management objectives. However, the public also must understand that prescribed burning poses some risk of having the fire escape control. The challenges to a prescribed fire program increase in areas of checkerboard land ownership or multiple agency responsibility, and in wildland-urban interface zones, as is the case in many state agency-protected areas.

State Programs

NDF has a clear charter to coordinate and implement fire prevention and mitigation activities in the state, but has not had the resources to fund this mission adequately.

NDF Fire Prevention Program Goals – The NDF Fire Protection Manual (NDF, 2003) describes the objectives of the Division's fire prevention policy, which are to:

- reduce the threat to human life and property damage or loss by mitigating the hazards and effects of uncontrolled wildland fire;
- ensure the cost-efficient reduction of wildfire suppression costs by reducing the number of preventable fires;
- produce the most efficient and cost effective wildland fire prevention program, by coordinating these activities with federal land management, local fire protection agencies and citizen groups; and
- organize available resources to maximize wildland fire prevention efforts.

Consistent with best practices in wildland fire management, NDF targets its fire prevention activities both to stop unwanted fires from occurring (prevention) and minimize losses when a fire occurs (mitigation). NDF organizes its program along standard lines, dividing its activities into the broad categories of education, engineering and enforcement.

The Division works toward a uniform and coordinated statewide fire prevention effort. It expects fire prevention employees in each of the Division's regions and the Sierra Front Wildfire Cooperators, to harmonize their efforts, including planning, training, public education, and enforcement of laws and codes. It requires each region to analyze the capability and training of its personnel assigned to hazard mitigation and public education. The regions are supposed to request the training needed for their region's personnel.

The NDF Fire Protection Manual (2003) describes fire prevention as "...a high priority" and calls for each of its three regions to prepare and implement a regional fire prevention plan. This approach emphasizes risk mitigation, ignition prevention, and loss prevention in a step-wise progression of activities that respond to fire conditions.

Nevertheless, as typical of many state forestry agencies (and local governments), NDF has too few resources to meet the fire prevention and mitigation goals. The Division does not have a statewide fire prevention plan and lacks the resources to prepare one. There are some prevention resources in the regions, but they are not adequate.

These circumstances mirror other aspects of American life, including law enforcement, flood disaster response, and maintenance of many public facilities, where up-front investment in prevention and mitigation can be a tough sell until disaster strikes. The

2003 fire storms in Southern California have triggered concerns about much stronger wildland prevention and mitigation efforts in California (and to a lesser extent nationally).

There is little question that fire prevention provides tremendous leverage for reducing losses. Averting one large fire or mitigating the impact of fires on homes in the wildland interface quickly pays for a good prevention program. The scope of the improvement is revealed over time as the impacts are measured.¹⁸ For example, the TriData study of the wildfire program in the State of Washington showed the millions of dollars of emergency expenditures could be saved. It convinced the state legislature to invest more in prevention, mitigation, and rapid initial attack rather than pay more millions later out of emergency funds for fighting the recurring large fires.¹⁹

NDF management should consider continuing research and data collection to likewise demonstrate the cost-effectiveness of prevention, and use that line of reasoning to argue for increased fire prevention budgets in the future.

The NDF fire prevention program needs more dedicated guidance at the programmatic level in the form of a fire prevention coordinator at the State Office and a statewide fire prevention plan. At present, prevention is a responsibility of the Fire Program coordinator but merits a full-time position rather than being a collateral duty for an extremely busy manager.

Hazard Fuel Reduction and Treatment – NDF has a mitigation plan for prescribed burns, and the authority to carry it out, but lacks adequate staffing or resources to do much implementation.

NDF WILDLAND FIRE HAZARD MITIGATION PLAN: The NDF Resources Program has direct control over prescribed fire use in the state, and is in a key position to educate the forest resources community about the value of prescribed fire and other fuel reduction methods.

NDF has developed a wildland hazard mitigation plan which acknowledges that aggressive mitigation measures can be effective for reducing property losses and enhancing the public's safety. (NDF, 2003a) The plan aligns NDF with the National Fire

¹⁸ See *Proving Public Fire Education Works*, Schaenman et al, op. cit.

¹⁹ Review of Fire Protection Program for State of Washington, Department of Natural Resources, TriData Corporation, 1997.

Plan and the core principles and goals of the associated 10-Year Comprehensive Strategy. The goals of the Wildland Fire Hazard Mitigation Plan are to prevent injury and death and reduce property and resource damage, by:

- Improving prevention and suppression
- Reducing hazardous fuels
- Restoring fire adaptive ecosystems
- Promoting community assistance

The stated purpose of the plan is to provide a coordinated and consistent program among federal and state agencies and county governments, and to serve as a working guide for those agencies. However, the plan is intended primarily to meet FEMA requirements; it is needed to qualify for Stafford Act emergency assistance funds.²⁰ The act provides grants to states for suppression of wildland fires that could constitute a major disaster.

The mitigation plan emphasizes measures needed at the local, tribal, state, and federal levels. It assigns mitigation tasks to high-level boards, committees, and general categories of organizations, but without establishing firm schedules, specific assignments, or funding commitments. NDF does review and update the hazard mitigation plan annually to ensure that it supports the initiatives identified in the National Fire Plan and its associated 10-Year Comprehensive Strategy, but the plan is not detailed enough for implementation—it only delineates the broad strokes.

AUTHORITY: The state has the necessary authority for doing prescribed burns under Nevada Revised Statutes (NRS). The State Forester-Firewarden is authorized to use controlled application of fire as a tool in resource management and wildland fire management. NDF appropriately places strategic priority on areas where fuel treatments will mitigate threats to public safety; reduce risks and damage from a wildfire; reintroduce fire into fire dependent ecosystems; and protect, enhance, or restore critical plant communities and habitat.

The NDF Fire Protection Manual (2003) acknowledges the interdisciplinary nature of prescribed burning and other fuel treatment activities. According to NDF and national

²⁰ Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, called “The Stafford Act,” Public Law 93-288.

fire policy, land management objectives should drive fuels management policy. All fuel treatment is to support land and resource management plans. Consequently, prescribed fire and hazard fuel treatment require close coordination between the NDF resource and fire programs.

NRS 527 requires any private party, state or local government wanting to conduct prescribed burn to submit a prescribed burn plan to NDF for review and approval where the Division has responsibility for fire control. The Division's Resource Program Coordinator reviews the applications and associated plans, which currently total 7–10 per year.

ALTERNATIVES: Besides prescribed burns, NDF has experimented with non-fire alternatives to fuel treatment, such as mowing and opportunistic seeding of burned areas. They are meeting with good acceptance from the environmental community, including those who regulate air quality, and those who are concerned about the social and public health impacts of smoke from prescribed fires. The Division efforts at opportunistic seeding reflects their intention to plant adapted grasses to out-compete cheat grass, an aggressive and highly flammable exotic species.

INADEQUATE STAFFING: To meet the State's fire management challenges, NDF needs to deal with fuels on privately owned lands, particularly in the wildland-urban interface. NDF's work with landowners through its Forest Stewardship and State Forestry Assistance programs, and the Division's recent addition of Fire Protection Officers (FPOs) and plans to add more are excellent examples of using extension forestry principles to reduce the fuel hazard on privately owned lands. Unfortunately, the Division lacks adequate resources to implement the fuel reduction program on a statewide basis, or even just in the most critical areas. To help fill the gap, the Division's resource management program staff have been training fire program personnel to plan and implement thinning prescriptions. This initiative is a positive, interdisciplinary effort that carries NDF in the right direction. However, both the resource management and fire management staffs need augmentation to facilitate fuel management treatment goals across the state.

Wildland-Urban Interface Problem – As noted in Chapter II, a major problem in Nevada and other Western states is the growing encroachment of housing in and near wildland areas—the so-called wildland-urban interface (WUI). The wildland fire agencies identified 249 wildland-urban interface communities in Nevada. All are near

federally managed lands. Two-thirds are in counties where NDF has jurisdiction fire protection.

Statewide, 20 percent of the 249 communities have continuous fuels that are conducive to crown fires or high intensity surface fires in close proximity to structures and also a history of large fires or high fire occurrence. Another 61 percent are in areas where fuels are conducive to torching and spotting (conditions that may lead to reduced firefighting effectiveness), and where there have been some large fires.

Fire protection agencies need to plan for prevention and mitigation at the individual community level if they are to reduce the urban wildland interface problem. NDF and its federal cooperators have conducted some preliminary community assessments, but additional assessments are needed across the state to further develop plans for the communities at highest risk.

With 249 communities already identified as having WUI risk, the mitigation assessment and planning is an enormous undertaking. Federal cooperators believe that NDF should work with local government to complete the National Fire Plan community risk assessments, and that this effort is an inherent NDF responsibility because NDF is the agency with jurisdiction for private lands. On the other hand, the federal government controls about 87 percent of the land in Nevada, and all 249 of the state's WUI communities are near federally managed lands. Some communities at risk are essentially surrounded by federally managed lands.

The Nevada Fire Board of Directors (NFBD) recently tasked the Nevada Fire Safe Council (NFSC) to complete a statewide county-by-county assessment of communities at risk from wildfire. The NFBD and NFSC anticipate that this effort will generate a wide array of projects. The work will require coordinated mitigation planning, and procedures that combine individual agency efforts. The Council envisions a fully integrated interagency effort.

Considering the scope of such an undertaking, a successful approach will likely require more than just cooperation – rather a truly collaborative approach, as envisioned by the recently released *Field Guidance for Identifying and Prioritizing Communities at Risk*, prepared by the National Association of State Foresters. (NASF, 2003) The intent of the NASF is to provide national, uniform guidance for implementing the provisions of the “Collaborative Fuels Treatment” Memorandum of Understanding and to satisfy the requirements of the Implementation Plan for the 10-Year Comprehensive Strategy. (Fire

Plan, 2003) The approach is to include all lands and all ownerships; use a collaborative process that is consistent with the complexity of land ownership patterns, resource management issues, and the number of interested stakeholders; and set priorities by evaluating individual projects, not by ranking communities. (NASF, 2003)

INTEGRATED INTERAGENCY EFFORT: There is consensus across the various cooperators on the need for coordination of fire mitigation planning and procedures, and not just in the WUI communities. The State needs one integrated, interagency effort that some have described as the same level of interagency cooperation in fire mitigation that exists in fire suppression. What may be needed to bring this coordination about is an interagency fire prevention and mitigation coordinator who can serve as the statewide focal point and point of contact. NFSC could play this role, as has been done by Keep Green Associations in other states, but ideally NDF would take the lead in cooperation with NFSC because NDF is in a better position and has the legislative charter to coordinate activities statewide.

Regardless of who leads the effort, a statewide fire mitigation initiative will require commitments from both NDF and its federal cooperators. A statewide mitigation effort will require additional NDF resources, including additional forest protection officers and service foresters to assist property owners with project implementation and administration, and grant funds to facilitate fuels work on private lands.

NDF and BLM have unified their previously separate application processes for grant assistance to volunteer fire departments. This joint application process receives high marks from the applicants and the agencies that make the grants. Perhaps it can provide a model for mitigation grants as well.

Public Education – The NDF Wildland Fire Hazard Mitigation Plan includes a “Public Awareness / Education / Information / Outreach” component oriented to making the general public aware of the danger of wildfires, the need to prevent wildland fires, and measures citizens can take to reduce fire occurrence. (NDF, 2003a) The plan includes a comprehensive list of work elements related to public education:

- Developing a comprehensive awareness and outreach program
- Adopting one standard for fire restrictions and closures
- Developing public service announcements for radio and television

- Issuing public notices and news releases declaring high fire danger periods.
- Developing and distributing brochures highlighting fire prevention/mitigation
- Conducting sessions for schools and community groups
- Posting fire hazard and prevention signs at high threat areas.
- Posting fire prevention and high fire danger warning signs and posters.
- Concentrating fire hazard and prevention signs within high threat areas.
- Organizing neighborhood/community based hazard mitigation groups.
- Encouraging defensible space landscaping

Like other components of the Fire Hazard Mitigation plan, these public education work elements are assigned either to high-level committees or generically to broad categories of organizations without specific assignments, established time frames or budget commitments.

Through its participation in the NFBD, NDF supports and participates in initiatives of the Nevada Fire Safe Council, Sierra Front Wildfire Cooperators, and University of Nevada – Reno Cooperative Extension to promote community-based fire safe councils and to provide a consistent public education message. (NFSC and the UNR Cooperative Extension are discussed further toward the end of this chapter.)

Federal Programs

NDF works on fire prevention and mitigation in cooperation with the U.S. Forest Service, Bureau of Land Management, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, and the National Park Service through a master Cooperative Fire Protection Agreement, as it does in other areas.

The agreement establishes an oversight board, the NFBD, to assure continued collaborative and cooperative efforts in wildland fire management. The NFBD:

- encourages its local agency units to monitor current conditions and complete specific community assessments within their jurisdiction or their jurisdictional influence through collaborative efforts.
- encourages its local agency to prioritize hazard mitigation projects within their area of jurisdiction or jurisdictional influence through collaborative efforts

- uses collaborative efforts to prioritize local unit hazard mitigation projects on a statewide basis.

At the field unit level, NDF and its federal cooperators participate in cooperative fire prevention activities, including fire prevention programs, inspections, and related law enforcement activities. Cooperative activities include joint press releases, coordinated delivery of the Smokey Bear program, local educational programs and coordinated placement of fire prevention signs.

NDF has tasked the coordinator of the Sierra Front Wildfire Cooperators, one-third of whose salary is paid by NDF, to watch after the Division's interests at the regional level, focusing on the prevention measures that NDF and its federal cooperators include in their annual operating plans.

Non-Agency Programs

The major non-governmental wildland fire prevention efforts in Nevada are conducted by the National Fire Safe Council (NFSC) and the University of Nevada–Reno (UNR) Cooperative Extension.

UNR Co-op Extension – The UNR Co-op Extension works closely with the Sierra Front Wildfire Cooperators (SFWC). They share a National Fire Plan grant to conduct a residential attitudes survey, create fire hazard rating maps, standardize messages to homeowners and develop delivery mechanisms. Emphasis has been placed on standardizing the recommendations made to WUI property owners to get behavioral change by providing a consistent message from multiple sources, multiple times. UNR Co-op Extension is also placing emphasis on education of the “green industry” (landscapers, landscape architects), and works on this with the Nevada Landscape Association.

Nevada Fire Safe Council – The Nevada Fire Safe Council (NFSC) has a truly innovative approach to fire prevention and mitigation. The typical NFSC chapter is a community at risk from wildfire. They are pooling together and going to NFSC for community assistance grants.

Initially NFSC focused on defensible space around individual properties, offering cost-shared grants. They used NDF foresters to develop timber thinning prescriptions and to mark timber on about 75–80 percent of the projects, and NDF camp crews or contractors

to carry out the projects. (The use of camp crews is an area with much potential for expansion.)

In its next phase, NFSC focused on community-wide solutions, employing consultants for community-wide fire planning that was to be implemented by the local NFSC chapter. In this phase, NDF participated in much the same way as they did in the first phase.

Recently, NFSC began to focus on areas outside of communities on a landscape scale. These efforts usually involve projects on public lands; advocacy and awareness; and getting more people involved in the planning process and advocacy for mitigation work. The Council is also currently researching biomass utilization opportunities for an industrial “feed stock” pilot project.

The cooperative relationship between NDF’s forest stewardship and service forestry programs and NFSC represents a valuable strength for the state. However, the Council is growing rapidly, bringing new chapters on line constantly, and the need for NDF assistance is quickly surpassing the Division’s capacity. NFSC needs additional NDF resources, including service foresters and forest protection officers to assist property owners with project implementation.

Counties

By cooperative agreement, NDF and its cooperating counties have arranged to share copies of residential certificates of occupancy, plan reviews, and fire prevention inspections. Upon request, the fire prevention bureaus of the cooperating agencies conduct joint reviews of significant projects and assist one another with fire investigations.

Generally, the counties make only a small contribution to wildland fire prevention initiatives. Most NDF protected counties are rural, not strong financially, and dependent on volunteer fire organizations. Often the counties look at fire prevention as a luxury rather than an integral part of the fire protection system.

Recommendations for the Future

In light of the current strengths and unmet needs, we recommend the following integrated concept for fire prevention and mitigation going into the future.

Recommendation 40: Continue to expand the Division's efforts to become proactive in forest health and fuels management, and to strengthen prevention. The recommendations below provide some specific suggestions.

Recommendation 41: Strengthen the agency's coordination of its fire prevention and mitigation at all levels of NDF statewide. Hire a fire prevention coordinator at the state office who would be responsible for statewide fire prevention planning, and guiding implementation of a statewide approach to fire prevention.

Recommendation 42: Develop a statewide plan for fire prevention and mitigation. It should:

- take a comprehensive approach that goes beyond ignition management during periods of severity and meets FEMA requirements;
- maximize the effectiveness and impact of cooperative approaches;
- provide guidance and standards;
- assure coordination and accountability;
- establish quantifiable prevention, mitigation and outreach goals; and
- establish schedules, assign tasks and makes specific funding commitments.

Recommendation 43: Promote community-based fire safe councils and help them provide a consistent public education message. Do this through continued participation in the NFBD, and participation and support for the initiatives of NFSC, Sierra Front Wildfire Cooperators, and the University of Nevada – Reno Cooperative Extension. Support NFSC on-the-ground projects by making support and implementation of their projects an essential part of the Fire Protection Officers' duties.

Recommendation 44: Sustain the current initiative of the Division's resource management program staff to train fire program personnel on how to plan and implement thinning prescriptions. Add staff to both fire and resource management programs to facilitate fuels management treatment statewide. This should include the addition of several FPO and service foresters to assist property owners with project implementation and administration. Ideally, add one of each per region (total of six.)

Recommendation 45: Have at least one full-time prevention specialist per region. There are two full time prevention personnel in the Western Region, but none in the other regions at present, where prevention now is a collateral duty. NDF should also develop simple, off-the-shelf prevention tools that can be readily used in the regions.

Recommendation 46: Continue the Division's use of non-fire alternatives (such as mowing and opportunistic seeding). They are meeting with good acceptance from the environmental community.

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VIII. PRE-SUPPRESSION, DISPATCHING, AND SUPPORT

This chapter discusses activities NDF undertakes in advance of a fire, typically referred to as “pre-suppression” or “preparedness.” They include training, qualifying, and equipping personnel; community and local government grant programs; equipment readiness and maintenance; and the strategic positioning of firefighters, equipment and other resources near areas of fire potential.

Preparedness also includes provision of fire detection, dispatching and communications systems.

Equipment and Stations

A fire protection system depends heavily on equipment, including fire apparatus, transport vehicles, heavy machinery (e.g. bulldozers), personal protective equipment, and support resources (e.g. field kitchens).

NDF maintains an extensive fleet of mobile equipment deployed at the state office and in all three regions. Most NDF fire apparatus is purchased through commercial fire apparatus dealers or manufacturers. However, the Division builds water tenders on either FEPP chassis or surplus truck chassis obtained from the Nevada Department of Transportation.

The NDF Fire Protection Manual states, “A systematic acquisition/replacement schedule [for equipment] should be developed based on a reasonable fire management plan for each region.” (NDF, 2003) However, the lack of adequate financial resources makes it difficult for the regions to implement the policy. The age, reliability, and repair of apparatus are acute problems.

Type I Engines – The fire apparatus maintenance and replacement program is especially deficient where NDF has full-service fire department operations. The NDF shops appear to be unprepared to make timely and adequate repairs to the front-line Type I fire engines used for structural and medical response in communities protected by NDF.

Conservation Crew Vehicles and Radios – Equipment issues are perhaps most acute at the Division’s Conservation Camps. The camp system depends on approximately 100 vehicles, which are used to move inmate crews to and from daily work projects and fire assignments. At the beginning of this study, the fleet included 42 modular

Conservation Crew Vehicles (CCV) and nearly 60 buses. The buses, designed to run on pavement, all had been used for least 200,000 miles including extensive use on the rough, unpaved roads that lead to the conservation work sites. Some of the CCVs also have high mileage—up to 190,000 miles. Radios in the vehicles also are a problem, with 62 out of 100 mobile radios in CCVs so old that they cannot be repaired.

Because of limited financial resources, NDF was able to replace only four crew vehicles per year out of the fleet of 100, a completely inadequate rate. The crew buses were so worn out that some incident management teams refused to allow the Conservation Camp crews to demobilize from interagency fire assignments because their transportation was deemed unsafe. During mobilization to the major 2003 fires in Southern California, Division management made the wise decision to avoid this situation by sending crews out only in CCVs, not buses. At the time of the mobilization, the Division found that only 36 of its 42 CCVs were running.

During the course of this study, following a high profile accident involving school children in a bus of the same manufacture as the NDF buses, all NDF crew buses were shut-down. The Nevada Legislature provided emergency funding to replace the buses with CCVs. While this will be a tremendously beneficial short-term improvement, the Division still needs a systematic vehicle replacement program.

Volunteer Fire Department Apparatus – NDF relies on volunteer fire departments to function as all-risk responders and to provide the backbone of the NDF fire protection system in the Northern Region. They also provide important auxiliary forces in the Western Region.

NDF-associated volunteer fire departments are often running old, worn equipment that urgently needs maintenance; failures are frequent, again because of inadequate financial resources, the Division can provide little equipment maintenance or replacement.

The Division has too few mechanics to cover hundreds of pieces of apparatus in eight counties and three corners of the state. Mechanics cannot see each piece of apparatus even once each year. NDF relies on its Battalion Chiefs and Captains to make minor repairs on volunteer fire department apparatus. However, their administrative responsibilities only allow them to get to the field one or two days per week. Practically speaking, there is only a minimal preventative maintenance program.

Federal Excess Personal Property – NDF screens and procures Federal Excess Personal Property (FEPP) for cooperating fire departments and itself. Both NDF employees and cooperators commented that the Division relies too much on this equipment, and that the large, aging fleet of FEPP exacerbates equipment maintenance and replacement issues. This issue is not unique to NDF; other state agencies have found themselves trapped into similar over-dependence on FEPP.

Stations – Station maintenance and other facility maintenance present similar maintenance challenges. The Division needs a systematic maintenance program for its facilities as well as equipment.

Recommendation 47: Develop an adequate statewide fire apparatus and equipment maintenance capability either in-house or by contract. NDF must be able to provide timely and adequate repairs to front-line fire apparatus used for structural and medical response in communities protected by NDF. The capability should be available for volunteer equipment and apparatus. Expand shop capacity, and employ additional mechanics with mobile shop capabilities organized under the fire program at the regional level. Do not centralize mechanics and shop facilities at regional offices. Consider the opportunities for expanding Conservation Camp involvement in mechanical support.

Recommendation 48: Establish a vehicle replacement program that assures a safe and reliable fleet of Conservation Camp Vehicles going into the future. Having a capital improvement program for vehicles that allows for better planning and avoiding an unexpected financial hit in one year when groups of vehicles start to fail simultaneously.

Recommendation 49: Decrease the Division's dependence on FEPP. The ability to procure and re-develop FEPP equipment presents states with the potential to provide low-cost firefighting and support equipment to local cooperators and their own programs. Experience both in NDF and in other states shows that FEPP also presents a vehicle development and maintenance workload that can overwhelm the capability of the mechanics if the percentage of FEPP equipment in the fleet is too high.

Logistical Support

The Division maintains a system of logistical support that seems to serve its needs well. Each region stocks a fire cache/warehouse and maintains a list of key vendors and contractors that assist the Division on incidents as needed. The interagency dispatch centers keep the lists of contractors and vendors, including caterers and utilities, which are also incorporated into an Annual Operating Plan. The Conservation Camps maintain additional fire caches, one at each camp, for outfitting the camp's crews.

A gap in the NDF logistics system is the lack of procurement, support dispatching and logistics capacity that can be committed to expanded dispatch centers during extended fires or extended fire situations (multiple fires or one large fire). This gap requires the Division's federal cooperators to provide procurement and contracting services and warehouse delivery on its behalf. This in turn impacts interagency cooperation and strains relations. A recommendation to fill the procurement and support dispatching gaps is included under dispatching below.

Dispatching

Nevada has five interagency dispatch centers: Central Nevada Interagency Dispatch Center, Elko Interagency Dispatch Center (EIDC), Ely Interagency Dispatch Center, Sierra Front Interagency Dispatch Center (SFIDC), and Las Vegas Interagency Dispatch Center (LVIDC). NDF has employees at two of these centers, Elko and Sierra Front.

All five dispatch centers are designated as Initial Attack Dispatch Centers. They provide initial and extended attack dispatching and logistical support to several cooperating agencies covering multiple jurisdictions. Each center can establish an expanded dispatch center as a temporary organization to handle the workload associated with supporting a large fire or multiple fires by increasing staffing and providing extended service. Each center also has a Dispatch Coordination Center (DCC) co-located with it to assign resources to incidents and support incidents at multiple agency or multiple administrative units within an agency when local resources are insufficient to meet initial attack or extended attack requirements.

When resources available to the DCC are insufficient to meet needs, the Western Great Basin Geographic Area Coordination Center (GAC) support the interagency dispatch centers.

NDF involvement in the interagency dispatch system provides strength to overall interagency cooperation and coordination, and the Division is a net beneficiary. Interagency dispatch is an element of the NDF fire protection system that must be continued. However, the Division's participation in interagency dispatch has several problems:

- NDF personnel who work at the dispatch centers are perceived by the supervisors and their center managers as competent, hardworking personnel who need additional formal training in dispatch.

- NDF contribution of personnel is not adequate to support 24-hour/7-day coverage. The Division's cooperators feel strongly that NDF needs to provide more personnel for dispatch coverage. Supervisory dispatchers have difficulty in formulating equitable schedules and dealing with other staffing issues.
- The NDF all-risk mission complicates, and some would say dilutes, the interagency dispatch mission. This is probably the number one issue at the dispatch centers. Day-to-day dispatching for the local all-risk mission is different from the standard operating procedures established for the center, and that difference in procedure creates conflict between responding resources and dispatchers.
- Support varies from one dispatch center to another. The Elko Interagency Dispatch Center does not have the same level of support as Sierra Front in terms of computers, communication technology and dispatch facilities. The delegated supervisory authority given to the SFIDC center manager from the SFIDC Board of Directors appears to be a real strength of that center.

Recommendation 50: Provide more training to NDF personnel assigned to interagency dispatch centers.

Recommendation 51: Develop NDF capabilities in the area of support dispatching, procurement and purchasing. Contribute personnel to the support dispatch function when NDF has extended attack fires or extended fire situations. These capabilities can be developed using collateral duty personnel from the state, regional and department offices.

Communications System

As noted earlier, an effective communication network is fundamental to a fire protection system, particularly in today's interagency environment where coordinated response to fires and other emergencies can mean the difference between success and failure.

NDF, like all fire agencies, must ensure that it has an effective communications system for timely fire reporting, dispatching, resource ordering, and for command and tactical communications on the fireline. Without effective communications, both firefighters and the public are at risk.

Communications interoperability is of critical concern in the interagency fire community. Major obstacles include radio spectrum limitations, incompatible technologies, and the lack of effective communications systems planning, all of which can be costly to overcome. Existing communication system weaknesses require firefighters from different

agencies to carry and monitor multiple radios for interagency communications. Added repeaters and reduction of communication technology disparities between regions are needed. Only minimal NDF funding has been available to convert volunteer fire department radio equipment, leaving the volunteers with a large conversion cost.

Washoe County 800 MHz – NDF recently decided to implement an 800 MHz radio system in Washoe County, and shift its all-risk dispatching function to the Regional Training Center (RTC) in Reno (effective in early 2004). The Division is using FEMA grant funding to pay for the switchover. This change, planned only for Washoe County, has significant implications for the Division's employees, cooperators and the Sierra Front Interagency Dispatch Center. The decision to change appears to have been made without adequate input from the Division's associated volunteer departments or the staff of the interagency dispatch centers. The dispatch center and field personnel who are dependent on the communications system seem largely unaware of the NDF strategy regarding the use of an 800Mhz radio system or its impact on them.

The Division's federal cooperators have no plans to convert their radio system and will remain on a VHF FM system. Also, the SFIDC does not have 800 MHz radio equipment.

Volunteers will need to have three separate radios—a 400 MHz radio to communicate with the Regional Emergency Management System Administration; a VHF FM radio to communicate with the Forest Service, BLM and other agencies; and an 800 MHz radio to communicate with NDF. This represents a potential firefighter safety issue when there is no convenient communications: having to use three radios leads to problems.

The potential seriousness of radio interoperability problem was evidenced by the Southern California fire-storms of 2003. Municipal fire departments in California had converted to 800 MHz radio systems while the state and federal wildland fire agencies remained on VHF FM systems. When the extreme fire situation demanded that the fire departments and wildland fire agencies coordinate their activities, firefighters were unable to communicate on the incompatible radio systems, and the overloaded 800 MHz system essentially collapsed.

Recommendation 52: Correct communication disparities between NDF regions.

Determine the level of communications technology at which NDF will function and systematically bring all regions to this level. Assure that all NDF facilities possess current information technology (electronic mail, internet access). Since the start of this study, the NDF began to take steps to resolve these issues.

Recommendation 53: Work with cooperators to assure that interoperable radio communications systems are in place. NDF especially needs to assure dispatch and tactical communication interoperability with its local and federal government cooperators during initial and extended attacks.

Recommendation 54: Engage in collaborative planning with NDF's local and federal cooperators regarding the 800 MHz radio system. This is needed whether or not the decision to convert to an 800 MHz radio system can be reconsidered. If the decision to convert stands, NDF should obtain resources to assure that its associated volunteers and the interagency dispatch center have an inter-operable communication system that provides for the efficient dispatching of resources, and safe, effective command and tactical communications on the fire line.

Recommendation 55: Undertake a system-wide assessment of NDF communications to determine (a) where there are system dead spots, (b) where there are inadequate numbers of radios, and (c) other communication system adequacy or reliability issues. Develop a plan for correcting system deficiencies.

Recommendation: Employ or contract out for a communications technician in the NDF Northern Region to maintain and repair county radios. Lack of radio maintenance is a serious operations and safety problem there. [This recommendation was given earlier in the discussion of Regions as Recommendation 18, and is repeated here for completeness of thoughts about pre-suppression.]

Air Operations

NDF issues an annual Aviation Operation Plan and an associated procedures manual to establish guidelines and procedures for its aviation operations. The Division operates both fixed wing aircraft and helicopters. Fixed wing light aircraft support both fire and non-fire activities of the Division. The NDF helicopter operation primarily is for fire initial attack support to the Division and its cooperators. One of the helicopters is FEPP. They both are restricted primarily to fire support missions.

NDF Heli-Tac and Helicopter Operations – The NDF Heli-tac operation is a statewide program supervised by the NDF state office and staffed by the Western Region's Stewart Camp. It is based at the Minden-Tahoe Airport adjacent to the SFIDC. Requests for NDF helicopter support are made through the SFIDC, including those outside the SFIDC operating area.

NDF staffs its Heli-tac operation with two helicopter managers, five seasonal employees and eight inmates from the Stewart Camp. The crew can be split into two separate units. The Division treats its helicopters and the personnel assigned to each as cohesive units

that are not to be separated without prior approval. The state office can call on personnel from other regions as required.

NDF also maintains an effective air operations relationship with the Nevada National Guard. When required by critical fire conditions or resource shortages, NDF uses Guard helicopters operated by fire-trained pilots and equipped with buckets and NDF radios.

Aviation Issues – The majority of NDF air operations support cooperating federal agencies on their own fires. During our survey of stakeholders, some federal cooperators questioned whether the NDF aircraft could be better deployed and whether the federal agencies should have their own aircraft. The federal cooperators' concerns stemmed largely from past problems and safety issues. NDF said that many of these concerns have been taken to heart and are already being addressed. The cooperation has been improving steadily.

The cooperators' perspective was that if aviation were to remain part of the NDF fire mission, it must provide reliable service under local NDF regional offices rather than State Office control to better reflect interagency priorities. The following issues were noted:

- NDF has centralized aviation assets near the state office. It assigns no aircraft to the Northern Region, which has the highest fire incidence, except when the severity of fire conditions is high in the Northern Region and less elsewhere, in which case aviation resources are sometimes repositioned.
- In the SFIDC operating area, federal cooperators would prefer that NDF amend its aviation plan to require that the second NDF helicopter move up into initial attack-ready status (i.e., staffed on the ramp, available for dispatch) whenever the first helicopter is dispatched.
- The NDF fixed-wing light aircraft do not provide a reliable resource because of staffing shortages. Improving aircraft availability would require an additional dedicated pilot.
- Some cooperator personnel do not like inmate staffing in the NDF heli-tac program, believing that it makes the system too inflexible because of security needs. They prefer a more traditional interagency heli-tac crew organized outside of the camp system. Other cooperator personnel report that the heli-tac program staffed in part by inmates from the Stewart Camp works very well. However, all

federal cooperators agree that the aviation program should be operated with more of an interagency focus; i.e., involve the federal cooperators in the planning and management of the program.

- Cooperators raised questions about whether the NDF helicopters (UH1Hs) are appropriate for the elevation and altitudes at which they have to operate in Nevada. They point out that H model Hueys are convertible to the Bell 205++ “Super-Huey” at a cost of \$800,000 per helicopter or about \$1.6 million.

NDF has essentially made the desired change regarding local control. The Division feels that adequate interagency input is in place via its involvement in the interagency dispatch center. The NDF also feels that its recent improvements, including its revised operating plan, are leading to the changes that their cooperators desire. For example, the Division now maintains two fire-ready helicopters, staffed by four pilots, and can staff both helicopters seven days per week.

Recommendation 56: The aviation plan should try to assure that NDF helicopters are located where they best support the NDF mission and its cooperators. This recommendation is linked to a later recommendation to use the Fire Planning Analysis system (FPA) to determine the Division’s most efficient operating level in each NRS 473 District. The USDA Forest Service and USDI BLM have recently received direction to complete a joint FPA analysis, and NDF is participating in it.

Recommendation 57: Seek resources (pilots) to allow the second NDF helicopter to move up into initial attack-ready status when the first helicopter is dispatched. A second helicopter is often needed during fire season. NDF State Office personnel indicate that one helicopter is always committed to the Sierra Front and that the second helicopter (and possibly a third in the future) are managed as statewide resources. The details should be discussed with the interagency cooperators.

Recommendation 58: Seek resources that would enable NDF to employ a second, dedicated pilot for its fixed-wing aircraft. We concur with the federal cooperators’ comments on the need.

Recommendation 59: Maintain NDF’s system for staffing and managing its helicopters. The use of inmates is cost-effective. Some of the perceived problems might be remedied by involving the federal cooperators in the planning and management of the program.

Recommendation 60: Conduct further research into the performance of NDF helicopters at high elevations. Determine the need and feasibility of helicopter conversion to higher performance models.

Inmate and Youth Crews

Wildland fire agencies have to struggle with the declining pool of organized and trained handcrews available to them, a result of downsizing and changes in the composition of the workforce (fewer fieldwork positions) – caused by changing missions and tight budgets. Gone are the days when a national forest with an active timber sale program could field ten or 20 crews of “agency regulars” on short notice. In fact, many would struggle to dispatch one or two crews today.

Native American fire crew programs in Montana, Alaska, and the Southwest, field substantial numbers of firefighters to fill the gap. So does use of contractors. Local government firefighters also fill a small portion of the void. However, the fact remains that far fewer dedicated fire crews exist today than did even 15 years ago. The critical crew shortages are evidenced by frequent military mobilizations and use of ill-prepared “Administratively Determined” (AD) and contract firefighters.

Conservation Camps – Like other western states, NDF obtains firefighting labor from its correctional system, which fields 75-80 26-person fire crews. The inmate crews are trained, low-cost, and readily available from NDF facilities. They provide an essential component of the NDF fire program, as previously noted.

To obtain the crews, NDF and the Department of Corrections (DOC) operate ten labor-intensive work camps known as Conservation Camps. As established by NRS 209.464, inmates assigned to the camps perform public conservation projects that include (but are not limited to) forest fire prevention and suppression, forest and watershed management, soil conservation, forest and watershed re-vegetation, community service, and state highway improvement. The camp program is administered under the NDF’s Resource Program at the state level, though the three NDF Regional Managers control the administration and supervision of the Conservation Camps in each of their region’s administrative boundaries.

Each camp is directed by an NDF employee known as the Conservation Camp Supervisor, who is under the NDF Regional Manager. The camp supervisor maintains responsibility for all outside work projects of the camp and works in cooperation with a DOC counterpart (the Camp Lieutenant). Each crew also has custodial personnel who work for the DOC.

The Camp Supervisor is responsible for identifying projects to keep the camp's crews employed in useful forestry and conservation work, and for their training. Under NDF policy the Camp Supervisor should contact communities, private cooperators (such as Union Pacific Railroad), and the Nevada Department of Transportation to identify revenue-generating projects for the camp. The Nevada Budget Division requires that camps engage in reimbursable work projects. Division policy states that fire suppression and other emergency activities take priority over other projects, including revenue-generating work.

Conservation camp crews may work on private property if the property owner has signed a contract or cooperative agreement, including a cost estimate provided by the camp supervisor. State law grants all NDF forces, including inmate crews, the authority to enter private property to suppress a fire, or to control forest insects and disease within a zone declared by the State Forester. The Division may also use inmates assigned to conservation camps to perform work on conservation projects for local, state and federal agencies through contracts or cooperative agreements.

NRS 209.464 and the governing policies are quite comprehensive and forward-looking. Inmates assigned to Conservation Camps provide a flexible resource of high value and low cost. The Division's cooperators regard the camp program as one of the most popular and valued aspects of the NDF fire program. The NDF camp program is vital not only to the mission of the NDF fire program, but also to the Division's federal cooperators.

Youth Training Centers – The Division has access to two 20-person crews from two Youth Training Centers (juvenile correctional institutes), one for boys and one for girls, though they are not part of the NDF Conservation Camp program. The Nevada Youth Training Center crews are currently the subject of a controversy between the NDF and Forest Service at the regional level over their status as minors. Consequently, these four crews are currently unavailable for dispatch.

Conservation Camp Issues – As reported earlier in this chapter, NDF Conservation Camps face critical challenges in equipment and training. One NDF manager said, "Our most valuable asset is the most neglected." The equipment and training deficiencies result from a system that is persistently underfunded.

Besides equipment and training, several other issues affect the Conservation Camp program:

- The Nevada Legislature requires that the camps engage in reimbursable work projects. Each year the Budget Division has required each camp to raise more money than in the previous year. This approach has created several unintended consequences. In their struggle to meet the revenue targets, the camps have competed with private enterprise. Also, federal cooperators report that the revenue-raising projects sometimes interfere with fire crew availability.
- The Conservation Camp Supervisors report to the Regional Forester, but at the state level the Conservation Camp Coordinator works for the Resource Program Coordinator. Both the Conservation Camp Coordinator and Regional Forester evaluate the performance of the Camp Supervisors. Division personnel are finding this organization confusing and difficult.
- With constant turnover in the inmate workforce, Division staff train inmates at every Conservation Camp during every week of the year. This means that ten crew supervisors at the ten camps are unable to supervise inmates during conservation fieldwork, as the supervisors are fully committed to training. In addition, having training given by ten different supervisors in ten locations makes it difficult to provide consistent training. Other states using inmates, most notably California's program, address this issue by operating a single training camp. All inmates entering their program pass through the training camp, like military basic training, and then are assigned to a work camp.
- The Conservation Camps, several of which are located in remote areas, need to operate in a relatively autonomous and self-sufficient manner. But they lack the resources to adequately maintain their vehicles and equipment, or train their NDF and DOC personnel.
- Some Conservation Camp buildings are old, in very poor condition, and need replacement. The DOC views this as an opportunity to consolidate some 150-inmate camps into 300-person camps to take advantage of economies of scale. However, there is a need to balance the DOC interest in economy with the NDF interest in having inmates strategically located for fire response. NDF and DOC need to work together on this issue to make sure that it is addressed in a way that is satisfactory to both agencies.

Recommendation 61: The Conservation Camp Program should at a minimum remain at current levels, regardless of NDF's mission regarding fire initial attack or direct provision of fire protection services in fire protection districts. The NDF/DOC

Conservation Camp Program is central to the interagency fire protection system in Nevada. Consistent with current policy, fire and emergency work must remain the priority of the camps and their crews.

Ideally, the state should expand the number of camps and the number of inmates available to NDF, but this may not be practical. The camp program has had very few “walk-aways” or other problems associated with minimum security inmates. The DOC attributes this to a good job of inmate classification and assignment. Inmates must meet “minimum custody criteria” to be assigned to the camps. The DOC recently broadened these criteria, allowing offenders 36 months from release to go to the camps (previously it was 18 months.) However, the DOC believes it has exhausted its population of inmates suitable for camps. In fact, the DOC currently has surplus minimum-security capacity, because the number of incarcerated low-level offenders is dropping as they increasingly diverted away from joining the prison population to alternative sentences. The camps cannot be expanded without further broadening the minimum custody criteria, which is not desirable because what is left are the more violent offenders, long-term recidivists and sex offenders who are barred from participation.

Recommendation 62: Reorganize the Conservation Camp program within NDF to provide clearer, direct reporting lines of authority. There is a double reporting chain for each camp at present.

Recommendation 63: Develop and operate a single training camp. Induct all inmates through the training camp, and then re-assign them to work camps once they complete their “basic training.” The California model could be emulated. This recommendation could create a problem for DOC because it adds to prisoner transportation needs, and DOC is already backlogged from lack of staffing. However, DOC said they would not be opposed to the idea if the NDF were to establish its own transportation system to facilitate the single training camp idea. The DOC also noted that the training camp idea would require some attention to housing and custodial staffing issues. Regardless of the implementation details, the single training camp initiative would require additional funding from the State General Fund to support both the NDF and DOC.

Recommendation 64: Assign trainers and mechanics directly to the Conservation Camps. NDF employees at the camps are not adequately trained. The camps have a serious vehicle maintenance problem. The camps are in remote areas and it is difficult to service them: they need to stand largely on their own.

Training and Qualifications

Effective fire protection and management requires highly skilled and well-prepared personnel. Training is essential for firefighter safety, both to assure that firefighters employ appropriate fire fighting strategies and tactics, and to ensure that proper

command and control procedures are used. Consequently, training NDF personnel and managing their qualifications is a key function. NDF employees and fire department cooperators need assurance that the training is of sufficient quality and quantity, and only qualified individuals who meet national standards fill fire assignments.

NWCG Qualifications – The National Wildfire Coordinating Group (NWCG) establishes national training and qualification standards for wildland firefighters. Technically, an agency may adopt its own internal standards that its people must meet to participate in fire management activities in their home jurisdiction. But personnel must meet NWCG standards to engage in wildland fires or prescribed fire activities away from their home unit.

Reflecting the increasingly interagency nature of wildland firefighting, most agencies adopt the NWCG qualification standards for all firefighters. State forestry agencies and local government fire departments that have chosen not to adhere to NWCG standards continually face controversy when their personnel operate in the interagency environment.

NDF maintains a policy that its standards will meet or exceed the minimum standards established by the NWCG. Division policy requires that the agency will assign only fully qualified personnel to duties in wildland fire suppression or prescribed fire. NDF adopted the NWCG *Wildland and Prescribed Fire Qualifications Systems Guide (PMS 310-1)* as its training and qualifications policy. The NWCG establishes its Wildland and Prescribed Fire Qualifications System on a foundation of three elements: training, experience, and prescribed levels of physical fitness.

Although requiring compliance with NWCG for its own personnel, NDF will allow personnel from agencies who do not subscribe to the NWCG qualifications standards to assist on fires managed by NDF. However, NDF policy states that the Division's fire managers must assign these resources only to duties commensurate with their abilities, qualifications and equipment capability. This is an important issue because the Division relies on many local fire department members who do not meet NWCG qualifications.

Adhering to NWCG standards while relying on non-complying local government personnel for much firefighting presents a dilemma that NDF shares with numerous other state forestry agencies. The issue often boils over into controversy when NDF-associated local government firefighters interact with federal cooperators and standing interagency incident management teams (IMTs).

According to the Division's Training and Safety Officer, all NDF fire training and personnel meet NWCG standards. The NDF Training and Safety Officer reported that the volunteer fire departments in the state are adequately trained and equipped, both in the eight NDF counties and statewide. However, numerous volunteer chiefs in the Northern Region did not share that view, and said there are too few NDF trainers for the large number of volunteers.

Physical Fitness Standards – Prescribed levels of physical fitness provide one of the three essential elements of the NWCG Wildland and Prescribed Fire Qualifications System, and NDF, like most wildland fire agencies, adopts this system as its standard.

The physical fitness component of the standards has historically presented a major obstacle to seamless integration of local, state and federal fire forces, and Nevada is no exception. In the NWCG system, an individual must pass an annual job-related Work Capacity Test (WCT) to qualify as a firefighter. These tests are designed to ensure that firefighters are physically fit to perform the work associated with firefighting without undue fatigue or health risk.

Technically, agencies have latitude to determine the method of evaluating the physical fitness of their personnel. However, reflecting the reality of today's interagency operating environment, the WCT adopted by the federal agencies have become the industry standard. NDF, like most state forestry agencies, has adopted the WCT as the physical fitness standard for its line firefighters.

WORK CAPACITY TESTS: The WCT system includes a suite of three tests called the Pack Test, the Field Test and the Walk Test. Each of the three provide the physical fitness standard for different positions, which are designated as either "arduous," "moderate," or "light duty" respectively. (Forest Service, 2003)

To qualify for arduous duty (which includes normal wildland firefighting), a firefighter must successfully complete the Pack Test, a 3-mile hike over level terrain carrying a 45-pound pack in 45 minutes or less. (Tests taken at higher elevations are adjusted.) The test correlates with previous physical fitness standards for wildland firefighters that had been in place for more than 20 years. The Pack Test is a pass/fail test. The "energy cost" of the Pack Test is similar to fireline work. Performance on the test relates directly to performance in the field. Because of the test distance, the Pack Test is considered an excellent indicator of a person's capacity to perform prolonged arduous work under adverse conditions with a reserve to meet unforeseen emergencies.

To qualify for moderate duty (described as the ability to lift 25-50 pounds, and the occasional demand for moderately strenuous activity) a person must successfully pass the Field Test, a 2-mile hike with a 25-pound pack in 30 minutes. Safety officers and fire behavior analysts, among others, perform at the moderate duty level.

To qualify to perform light work associated with fire operations (typically office-type work with occasional more strenuous field activity) firefighters must successfully complete the Walk Test, a 1-mile hike in 16 minutes with no pack.

Federal cooperators and NDF employees have taken exception to the lack of consistency of the Division's implementation of the Work Capacity Tests (WCT,) both in regard to local volunteer firefighters and NDF employees. At the field level, some key cooperators cite physical fitness as an example of their biggest challenge in working with NDF. These cooperators' concerns typically center on the lack of standards for NDF-associated volunteers, and differences in approach to oversight and enforcement of standards for them vs. NDF employees. Some key field personnel from federal agencies report difficulty in integrating NDF personnel into interagency operations (per National Fire Plan direction) without violating their own policy requirements.

VOLUNTEER FITNESS STANDARDS: Many volunteer firefighters and their departments resist the Pack Test requirement as they did the previous testing standard. Many simply ignore the standard, invoking the local standards provision of interagency cooperation protocols that requires the receiving agency to accept the standards of the providing agency. While this presents enormous opportunities for controversy in today's interagency operating environment, the reality is that NDF cannot achieve its mission without the participation of local government forces, whether they meet NWCG standards or not.

NDF EMPLOYEE FITNESS STANDARDS: Controversy is currently brewing within NDF involving the Division's application of the WCT for its own employees. The controversy appears to center on people whose bona fide position responsibilities are in question; that is, they may or may not require arduous duty, but have been required to pass the Pack Test.

Training System and Capacity – A single Training and Safety Officer at the state office coordinates all employee development training for all Division programs and functions. The Division maintains three interdisciplinary training committees, one in each region. Each committee establishes regional training needs and goals annually and

arranges training for its NDF personnel, Conservation Camps, and fire departments within NDF jurisdiction, including all-risk training. NDF also contributes trainers to interagency training efforts.

NDF fields its training cadre from regional field staff and cooperators, primarily people with full-time commitments outside of training and often outside of fire. The Division uses trained instructors, including certified instructors who were trained in the NWCG Facilitative Instructor course or others meeting these standards through equivalency. Instructors include NDF personnel, volunteer firefighters, federal cooperator personnel, and representatives of the State Fire Marshal's Office.

INTERAGENCY TRAINING COORDINATION: NDF participates in the Nevada Zone Training Committee, an interagency group that sets training priorities and publishes a training matrix (course information) through the BLM web site. The committee includes representatives of NDF, Forest Service, Bureau of Land Management, Bureau of Indian Affairs, and the National Park Service.

NDF also participates on the Great Basin Zone Training Committee, a higher-level interagency group setting priorities for advanced training in a nine-state zone. This group publishes its training matrix on the national training web site. Some advanced training is offered at Truckee Meadows Community College and at Great Basin College.

DISPARITIES IN TRAINING CAPACITY: While NDF is just meeting its training demand, almost all fire training now includes a recurrent component or requirement, which is a substantial change from the past. This trend is straining the Division's training capacity.

The Western Region represents the NDF training system at the most developed end of the spectrum. This region has a training bureau with three Training and Safety Captains, one per shift. The Captains train NDF-associated volunteers, NDF career firefighters and NDF seasonal employees. The Training Captains work with the Regional Training Center (RTC) in Reno and use its facilities to train NDF personnel and volunteers. The Division's involvement at the RTC has met with favorable reviews from NDF career firefighters, but remains controversial with some volunteer departments, who would prefer to train locally rather than travel to Reno.

At the opposite end of the training capacity spectrum lies the Northern Region. Although it is the Division's largest region, limited "4227" (county) funding and limited resources do not permit keeping up with the demand for even essential training. For example, the

White Pine Fire Protection District has seven volunteer fire departments but just one NDF employee for their training. BLM increasingly finds that its personnel must pick-up the slack in volunteer fire department training in the Northern Region, although this is technically an NDF responsibility. NDF wishes to carry out its training responsibility but lacks the financial and human resources to do so.

The Southern Region has relative few employees. The regional FMO has been doing their training but may not be able to continue doing this because of increased regional duties.

CONSERVATION CAMPS: NDF's training budget is inadequate to meet the training needs of supervisory personnel at the conservation camps. The division budget allows only \$492 per camp per year for all crew supervisor training, including their legally mandated training. The conservation camp coordinator estimates that it costs \$1,200 to train a new crew supervisor. NDF staff estimate that \$5,500 per camp per year is needed to provide minimally adequate training for the camp program. According to NDF state office staff, a more effective program that included both mandatory training and elective training for employees' career advancement would cost almost \$12,000 per camp per year.

TOTAL TRAINING BUDGET: in order to maintain its training capacity and maximize the efficiency of its training, NDF needs more money for training materials, adjunct instructors, and other training needs. Federal grant funding currently accounts for most funding of the division's training program. The training program costs \$41,000 annually, funded by \$35,000 in federal grants and \$6,000 in state funding. In the future, federal grants for NDF employee training will fall to \$15,000 supplemented by the same \$6,000 in state funding, for a total training budget of \$21,000. NDF hopes to supplement this budget with another \$35,000 in federal grants from a different source, but even if that grant is obtained, the funds will be restricted to volunteer fire department training. At the bottom line, ndf needs a level of resources that is not possible from the "473" funding mechanisms (an issue that transcends training). Over 90 percent of its training budget comes from transitory federal sources and the portion available for training the division's employees has fallen steeply.

Red Cards – In most wildland agencies, a firefighter's qualifications are documented annually with an Incident Qualification Card, commonly known as a "Red Card." It certifies that the individual is qualified to perform in a specified position. NDF maintains an Incident Qualifications System (IQS) for agency employees but does not consistently maintain training records for, or issue red cards to, its volunteer firefighters. If volunteers

are to continue helping to fulfill the initial attack and statewide mobilization responsibilities, they will need red cards to enable out-of-district responses.

The Division is working to develop a system to issue NDF-approved red cards to volunteer firefighters who belong to departments under the NDF umbrella. The system will be operational in the next two years. However, no one has taken initiative to develop a comprehensive, statewide system for red carding volunteer firefighters. NDF regards that as a responsibility of the State Fire Marshal's Office.

Recommendation 65: Improve relevance and convenience of training for local government firefighters. NDF has a training curriculum specific to volunteer firefighters in the Western Region, but not elsewhere. NDF bases its training on standard NWCG courses that are not adequately responsive to the needs of local firefighters. Most notably, the training often takes too much time for fire district and fire department personnel to participate. Some states like Montana and Idaho have developed curricula tailored for local government firefighters that meets or exceeds equivalency requirements for NWCG qualification.

The NDF needs to develop a training curriculum specifically for volunteer firefighters. Tailor courses to the volunteer firefighter audience, and recognize that available time is a major factor for this audience. The NDF curriculum should eliminate redundant and unnecessary material from standard NWCG courses, and strive to certify firefighters in 24 hours or less. The training should be driven by capabilities required to keep firefighters safe and fulfill their local role, rather than published hours of training. Training for firefighters who wish to be mobilized outside their fire protection district should require consistent certification according to NWCG standards.

Recommendation 66: Assure appropriate application of work capacity tests to the NDF workforce. NDF should be consistently meeting but not exceeding the standards.

Recommendation 67: Resolve physical fitness and Work Capacity Test application issues with local government forces. This will require a collaborative approach, such as convening a high-level meeting of NDF, federal cooperators and organizations representing local government firefighters. Include the Nevada Fire Board of Directors, Nevada Fire Chiefs Association, and the Nevada State Firefighters' Association.

Recommendation 68: Improve capacities to train conservation crew supervisors. Provide adequate resources that provides for both mandatory training and elective training that prepares the employee for career advancement. According to NDF State Office staff, at least \$8,000 per camp or a total budget of \$80,000 annually is needed. (Further research is needed to determine specific annual costs.)

Recommendation 69: Improve and stabilize the NDF training budget. NDF needs to continue aggressively pursuing federal State Fire Assistance (SFA) and Volunteer Fire Assistance (VFA) grants to fund a portion of its training budget. However, the Division (and Legislature) need to improve and bring stability to the NDF training budget. We recommend a minimum training budget as follows:

	Amount	Source
Fire-related training for NDF employees	\$ 50,000	Federal
Fire-related training for NDF volunteers	35,000	Federal
Non-fire training for NDF employees	50,000	State
Training for camp crew supervisors	<u>80,000</u>	State
Total training budget	\$215,000	

Recommendation 70: Develop an effective system for issuing Incident Qualification Cards (red cards) to local government firefighters. This will facilitate the volunteers' ability to contribute to the interagency fire effort, both in and out of their local jurisdictions. NDF should accelerate efforts to develop a system for tracking training and experience records for its volunteers and issuing the red cards. It should initiate an effort to issue cards to all of Nevada's qualified volunteer firefighters.

This recommendation requires two actions. First, the Division must provide adequate time and resources to accelerate the current software development effort to link Sun Pro software with the internal Incident Qualifications System (IQS) used to manage training and experience records, and issue Red Cards for NDF employees.

Second, NDF needs to work with the State Fire Marshal's Office to decide who will maintain records and issue red cards for the State's volunteers not currently under the NDF umbrella, and take action to develop the necessary system.

In both cases, what is needed is a system or systems that enable consistent and timely issuance of red cards to all the State's qualified volunteers.

Recommendation 71: Consider whether the Division requires both a dedicated Training Officer and a dedicated Safety Officer. One person currently does both functions. It is hard for him to do justice to both programs. We suggest separating the functions or adding an assistant.

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IX. FIRE SUPPRESSION AND FIRST RESPONDER ROLES

The National Interagency Fire Center (NIFC) defines fire suppression as “All the work of extinguishing or containing a fire, beginning with its discovery” (NIFC, 2003.) Another, commonly used definition describes suppression as a management action intended to protect identified values from a fire, extinguish a fire, or alter a fire's direction of spread. Described either way, suppression represents the cornerstone of the NDF fire program. In fact, practically speaking, fire suppression provides the program's central focus.

Constraints

To understand NDF fire suppression activities, one must first understand a few key factors at the core of what is a complex responsibility. With the exception of the Conservation Camp crews, the Division's aircraft, and administrative personnel at the State and Regional Offices, most NDF resources are organized around individual NRS 473 forest fire protection districts and funded by county taxpayers, not the state. It is for this reason that NDF, for the function of fire initial attack, can best be described as a local response agency operating in multiple localities, rather than a statewide fire response agency. In practical terms, the NDF maintains responsibilities for eight forest fire protection districts and often functions as if it were eight very small agencies supported by crews, aircraft, and supervisory personnel from the State.

While this system met the needs in the past, in today's environment, it carries enormous unintended consequences:

- The NDF fire program looks considerably different in every locality, not by design, but driven by the level of revenue a given county can generate from its fire protection district. These circumstances significantly obstruct the Division's ability to lead and manage a comprehensive, systematic fire protection system.
- There exist gross disparities between NDF regions and, to a lesser degree, between counties within NDF regions. For example, when Conservation Camps are removed from the equation, the NDF region with the largest area to cover, the most fires, and the greatest acreage burned, operates on five percent of the budget of the Division's next largest region.
- The Division cannot effectively expand its current system, let alone apply it across the state. The program's fragmented nature already presents NDF

managers with a daunting task. Expanding the current system model further would overwhelm the organization's capacity to manage. Consequently, the majority of Nevada counties remain without the capable fire suppression services of the NDF.

NDF depends on the response of federal agencies to reinforce the varying capabilities of the Division's local resources. Interagency cooperation provides a highly efficient and effective strategy with benefits to all participants, and is a central element of a balanced, integrated system. However, federal agency assistance to local government without the benefit of the coordinating influence of the State agency, can produce unintended consequences. The participation and influence of federal firefighters can upset fragile relationships between the Division and its local volunteers. Federal resources are also costly and the federal agencies are no longer willing to absorb their fire suppression costs outside their own protection boundaries. Unfortunately, the NDF does not have management resources adequate to assure that a coordinating NDF employee will be on scene to serve as a liaison between federal and local agencies where needed.

Fire Response Goals

The NDF Fire Protection Manual (NDF, 2003) states that:

The objectives of the wildland fire management program are to quickly and aggressively attack all unwanted wildland fires in that area where NDF has assumed primary direct protection responsibility by virtue of law, contract or mutual understanding and to continue aggressive suppression operations until the fire is under control. The strength of initial attack and follow-up action will be relative to values threatened and control difficulty with the intent to control all unwanted wildland fires within the first burning period.

It is the policy of the Division to fight fire aggressively with full consideration for employee safety, potential loss of life and property, and resource values threatened.

The NDF fire protection manual makes no similar goal statements regarding the structural or all-risk component of its fire management program. However, the manual does imply that the overall goal in structure fire situations is to confine the fire to the building of origin.

The ability to mount a fast initial attack is critical to controlling fires and to reducing fire costs. Getting a crew or other firefighting resource to a fire when it is small can keep the fire from escaping and requiring a multi-million dollar firefighting army-scale response.

In order to get to the fire while it is small, it is necessary to have early detection and to be able to transport personnel and equipment to the scene quickly. That requires either having enough units stationed around the state to reduce the distance from the fire and travel time, or having transport that makes the firefighting resources more mobile (e.g., helicopters), or a combination of both.

Resource Allocation

Unlike other State forestry agencies, the NDF is essentially a local response agency, not a statewide fire response agency. The three NDF regions are expected to be relatively self-sufficient to handle fires occurring in their region. With the NDF organized around, and funded by, individual forest fire protection districts, the agency is impeded in its ability to shift resources between regions to respond to major fires. Some cooperator personnel report that this can stretch NDF and volunteer resources very thin, and jeopardize structure fire or additional wildfire initial attack response in local jurisdictions.

Table 2 summarizes the Division's primary fire control resources and allocations throughout the state.

Table 2: Deployment of NDF Suppression Resource

Resource Type	Northern Region	Southern Region	Western Region	Total
Type I Engine	9	3	14	26
Type II Engine	33	2	7	42
Type III Engine	18	1	26	45
Type IV Engine	5	0	0	5
Type VI Engine	48	2	13	63
Type VII Engine	11	1	1	13
Total Engines	124	9	61	194
Water Tender	16	10	11	27
Dozer	2	0	3	5
Helicopter	0	0	2	2
Conservation Crew	33	36	18	87
Crew Bus				72
Conservation Crew Vehicle (CCV)				42
Sonoma Kitchen	2	1	1	4
Fixed-Wing Aircraft			1	

The dozers are staffed as needed. The Conservation Crews come from four camps in the Northern Region, four in the Southern Region, and two in the Western Region.

The categories of engines are standardized in the wildland fire service. They are shown in Table 3.

It is clear that NDF needs additional resources statewide. There is no region where the Division maintains enough resources to adequately deliver, supervise and manage its responsibilities. In addition, the citizens of nine of Nevada's 17 counties do not adequately benefit from the capable services of the Division.

The NDF Northern Region provides the most dramatic example of the inequities that result when a state agency is organized and funded around individual fire protection districts funded by county taxpayers. NDF deploys 130 (59 percent) of its 221 engines in its Northern Region, but only four of the 25 engines staffed by NDF career personnel.

The needs are greatest in eastern Nevada, where the Division has the most ground to cover and experiences its highest fire occurrence and fire size, yet does so with a budget that is a small fraction of the Western Region's budget. One might argue that NDF would optimize its fire protection system by reallocating what resources it can from the Western Region to the Northern Region. Unfortunately, the funding mechanisms under which NDF currently operates leave few options for NDF to expand its fire management capacity in eastern Nevada or to reallocate its resources from west to east, as NDF operations are primarily funded by local county *ad valorem* taxes.

Table 3: Types of Engines and their Minimum Requirements

Components	Structure Engine		Wildland Engines				
	I	II	III	IV	V	VI	VII
Pump Rating							
Minimum flow (gpm)	1000+	250+	150	50	50	30	10
at rated pressure (psi)	150	150	250	100	100	100	100
Tank Capacity Range (gal)	400+	400+	500+	750+	400-750	150-400	50-200
Hose (feet)							
2 ½ inch	1200	1000	-	-	-	-	-
1 ½ inch	400	500	500	300	300	300	-
1 inch	-		500	300	300	300	200
Ladders	48'	48'	-	-	-	-	-
Master Stream (GPM)	500	-	-	-	-	-	-
Personnel (minimum)	4	3	2	2	2	2	2

Engine Staffing

The NDF Fire Protection Manual (2003) states that NDF wildland fire engines (Type III to VII engines) shall operate according to NWCG standards (see Table 3). However, commensurate with the Division's shortfall in financial and human resources, many NDF engines respond with variable volunteer staffing. Outside the Western Region, the NDF staffs its career engines minimally, with one or two personnel. The staffing by region is as follows:

Northern Region

- Type I engines – one of nine is staffed with one NDF career firefighter approximately half the time; volunteer or career staff respond to complete the staffing.
- Type II engines – staffed with a variety of personnel, primarily volunteers.
- Type III engines – two of 18 are staffed by NDF career personnel @ 3 persons.
- Type IV to Type VIII engines – staffed with a variety of personnel, primarily volunteers.
- Type VIII engines – one of 16 tenders is staffed with one career firefighter; the rest with volunteers.

Southern Region

- Type I engines – one of three are staffed with NDF career personnel @ 2 persons.
- Type II engines – staffed with a variety of personnel, primarily volunteers.
- Type III engines – the only one is staffed by NDF career personnel @ 3 persons.
- Type VI and Type VII engines – are staffed with a variety of personnel, primarily volunteers.

Western Region

- Type I engines – Three of 14 Type I engines are staffed with NDF career personnel @ 4 persons.
- Type II engines – are staffed with a variety of personnel, primarily volunteers.
- Type III engines – eleven of 26 Type III engines are staffed by NDF career personnel @ 4 persons, the rest volunteers.

- Type VI engines – staffed with a variety of personnel, primarily volunteers.
- Type VII engines are staffed with a variety of personnel; primarily volunteers.
- Type VIII tenders – five of eleven are staffed with career personnel @ one person, the rest volunteers.

As mentioned earlier, because of its limited resources NDF staffs some its engines minimally, which sacrifices productivity and lowers firefighter safety. Firefighters cannot watch out for one another with one person at the engine and another 100 to 500 feet away on the nozzle. Two-person engine crews have great difficulty simultaneously suppressing fire, running a pump, advancing hose and constructing fireline while maintaining firefighter safety. As pointed out previously, safe and effective structural fire operations require four firefighters on scene at a bare minimum.

Contracting for Fire Suppression

In 1988, contract firefighting resources burst onto the wildfire scene, expanding their role in an industry traditionally dominated by government agencies. Contractors used to fall into two categories: first, the providers of specialized services such as aircraft firefighting and fire camp catering, with contracts and representation by national lobbying associations; second, services provided by “gyppo” loggers, road builders, timber companies, and other “woods operators,” who provided the bulldozers, saw crews, and water tenders necessary for firefighting.

Today many people view contractors as a valuable source of a broad range of firefighting equipment, labor, and expertise. Consequently, the availability and use of contractors is growing.

Some people believe that firefighting contractors should be fostered by government, especially in communities where timber and other natural resource-based economies have declined. Conversely, many government fire officers consider contractors to be expensive, inadequately trained, and poorly equipped. Others view contractors as a threat to conventional, sound, professional firefighting; fearing that contractors may portray themselves as cost-effective but then provide inferior equipment or services in the field. All these views have some truth behind them, in different situations with different contractors. (Greenlee, 1994)

Well-equipped, organized and trained contractors can provide a valuable resource to fire control agencies, including the NDF. Contracted resources are particularly useful when the fire control agency recognizes what contractors do well and incorporates them into the agency's overall fire protection system, rather than treating them as adversaries.

(Greenlee, 1994)

The NDF encourages its regions to use local cooperators and vendors whenever possible, and allows them the option of hiring contract personnel and equipment. However, in practice, the NDF makes only minimal use of contract resources obtainable through the interagency dispatch system. The resources available include bulldozers, water tenders, catering, catering support, and sanitation equipment and services. By contracting for additional firefighting tactical resources and support services when appropriate, the NDF can effectively expand its resource pool and add flexibility to its project fire response. This capability should be maintained.

USE OF CONTRACTORS VS. VOLUNTEERS: Federal and state agencies make significant use of contract resources throughout the West NDF Personnel report that the contract resources they obtain are of adequate quality, and are working out.

In the opinion of some NDF-associated volunteer fire departments, the BLM, and even the NDF, use the volunteers as a resource of last resort, and suffer from a bias against employing the volunteer fire departments on federal fires in and around their local operating areas. These feelings of perceived under-utilization become a much more important issue when federal agencies and the NDF employ contractors or other fire departments on fires without first adequately utilizing local NDF-associated volunteers.

The Chief Officers of volunteer departments also take exception to disparities between what they are paid for their equipment and the compensation received by commercial contractors operating similar equipment. Consistent with NDF policy, when a volunteer fire department responds with an engine, they receive a flat fee of \$40 for up to the first two hours of operation of that engine. After that, the department receives \$20 per hour per piece of equipment.

Commercial contractors receive considerably better compensation for similar equipment. For example, an NDF associated fire department responding with a Type III engine would be compensated as described above, while a commercial contractor operating an identical engine would receive \$135 per hour, with a minimum daily guarantee of \$1,080. One explanation for this disparity is that the volunteer departments frequently respond

with FEPP apparatus provided by the NDF, and technically belonging to the federal government. However, the compensation system remains the same whether volunteers respond with FEPP apparatus or apparatus purchased by the county or fire department. In addition, fire departments operating FEPP equipment have often invested heavily in turning a FEPP chassis into functional firefighting apparatus.

Cost of Firefighting

In 1995, in response to the rising costs of fire suppression and alarmed by the record costs of the 1994 fire season, the USDA Forest Service began efforts to assess fire suppression costs on large fires. Since that time, as fire costs have continued to soar, others, including the non-profit watchdog organization Taxpayers for Common Sense, have taken an interest in fire suppression costs. Despite these efforts, no comprehensive analysis of nationwide, interagency fire suppression costs has been made.

The NDF, too, did not have comprehensive fire cost records available, so the cost discussion here depends on comparison to fire suppression cost trends on federal lands, an evaluation of ten NDF fires and comparison to a TriData study undertaken for the state of Washington's fire management agency. Considering the intensely interagency environment in which NDF works, one would expect that the Division's fire cost trends would follow the steep upward trend of its federal counterparts.

Historical Data – In 1995, a Forest Service study found that fire suppression costs had been increasing since the late 1970s by more than \$17 million per year, and that total firefighting costs in 1994 were 174 percent higher than the previous record set in 1988, the year of the Yellowstone fires. The Forest Service study team cited as one cause of the increase the increasing number of individual fires with suppression costs of more than \$10 million. (USDA, 1995) Forest fuel conditions, drought, the emphasis placed on protecting private property, firefighter safety initiatives, and associated tactical changes continue to allow an increasing number of fires to grow large, and they are very costly.

According to Taxpayers for Common Sense (2000), the cost of fire suppression has escalated over the past two decades, and the trend continues. In 1994, the federal agencies spent \$950 million to suppress fires on 4.7 million acres, a cost of about \$20 per acre. In 2000, these same agencies spent \$1.3 billion dollars to suppress fires on 7 million acres, at a cost of nearly \$186 per acre. New records for fire expenditures were again set in 2000 and 2002. In 2002, federal agencies spent nearly \$1.7 billion to fight fire on approximately 7 million acres, or nearly \$240 per acre. (USDA, 2003)

Washington – In a study of the Washington Department of Natural Resources (DNR) fire program, TriData found that rapid and effective initial attack was clearly in the economic interest of the public, the DNR, and its partners, often comparing costs of large and small fires vs. the cost of fighting them. (TriData, 1997) While the fire environments in Washington and Nevada differ dramatically, the relationship between size and cost is still informative and relevant to the NDF. At the time, the DNR spent an average of \$627 per fire for suppressing fires of less than a quarter of an acre. Fires that burned a quarter of one acre to 10 acres cost \$2,670 on average. Costs jumped to \$32,098 per fire when they burned between 10 and 100 acres. Escaped fire costs continued to rise exponentially with fire size and the resources required controlling large fires. The DNR spent a per fire average of \$195,183 for controlling fires that burned 100 to 300 acres.

Because of firefighter reductions, forest fuel conditions, drought, and increasing rural populations, an increasing number of DNR fires were growing large and costly. The DNR spent an average of \$1.2 million controlling each of 21 fires exceeding 1,000 acres in size. The resources they required to extinguish more than 400 small fires were less than the cost of one large fire. The point is that it is of great economic importance to prevent fires or extinguish them when they are as small as possible.

All-Risk Management

NDF resources provide various levels of all-risk emergency service in four of its eight fire protection districts. “All-risk” includes structure fire response, emergency medical service, hazardous materials response, and rescue at motor vehicle accidents. The current NDF Fire Program Manual (2003) reflects this evolved mission, and characterizes NDF responsibilities in this way.

The State Forester Firewarden through formal county resolution and/or agreement has the authority to provide protection from structure and other fire. For fires within NDF Fire Protection Districts, the state bears the financial responsibility for all costs resulting from actions taken by NDF in suppressing fires and in minimizing damages to exposed life, property, and natural resource values.

Structure Fires – As the Fire Program Manual further states:

The State Forester Firewarden through formal county resolution and/or agreement has the authority to provide protection from and mitigating non-fire incidents. For emergencies other than fire in NDF jurisdictional Fire Protection Districts, the state bears the financial responsibility for all costs resulting from actions taken by

NDF in mitigating the emergency in minimizing damages to exposed life, property, and natural resource values.

The Fire Program Manual (2003) goes on to say that NDF maintains a policy that:

Within NDF Fire Protection Districts the Nevada Division of Forestry shall utilize legally established volunteer fire departments as its primary delivery system to fulfill its responsibility for structure and other fire authority or through agreement allow the county to reassume these responsibilities.

This policy direction reflects a transitional role described by several NDF personnel as one in which NDF provides all-risk service in NDF Fire Protection Districts until those responsibilities can be devolved to local government. However, the current reality reflects the more complicated operating environment in which the NDF works.

Hazardous Materials – The U.S. Department of Transportation (DOT) defines “hazardous materials” (HazMat) as material that poses an unreasonable risk to the health and safety of operating or emergency personnel, the public, and/or the environment if it is not properly controlled during handling, storage, manufacture, processing, packaging, use, disposal, or transportation. (DOT, 2000)

HazMat incidents differ from other types of emergencies in some important ways. They have the potential for doing great harm. Their effects can be far-reaching and severe. Hazardous materials incidents often have long-term effects on the environment, people, and property. Because of this, responders must be specifically trained and equipped to deal with them properly. HazMat response is an extremely specialized service.

According to the NDF Fire Protection Manual (2003):

NDF may participate in hazardous materials incidents as a first responder. Regions must address, as part of their annual operating (emergency response) plan, what roles are expected of their personnel.

The policy further states:

Under no circumstances will individuals working under the direction of the Division be permitted to participate in a hazardous materials incident at a level for which they have not been trained.

The Division’s policy allows NDF personnel to qualify at higher operational hazardous materials response levels (Hazardous Materials Technician, etc) with approval of the State Forester Firewarden.

NDF participation in hazardous materials response is an area of concern. For example, although the Division does not maintain an all-risk fire station there, in Eureka County. NDF personnel respond to three or four HazMat incidents per month on I-80 that involve cyanide, sulfuric acid, and other deadly chemicals.

Emergency Medical Service – Regarding emergency medical service, current NDF policy states:

NDF may provide emergency medical services under the terms of the county fire protection agreement. Normally, NDF direction to provide EMS in protected areas under cooperative agreement will be by resolution of the controlling board (Board of Fire Commissioners). This will normally be at the Basic Life Support level. Higher levels of emergency medical service personnel, such as Emergency Medical Technician - II or Emergency Medical Technician-Paramedic (EMT-P), may be provided with approval of the State Forester Firewarden.” Furthermore, “...the NDF may provide rescue and emergency medical services on a mutual aid or automatic aid basis to other fire protection jurisdictions.

A comparison between the Western Region’s Sierra Forest Fire Protection District (SFFPD) and the Northern Region’s Northeast Area Fire Protection District (NAFPD) provide an effective example. In the SFFPD, NDF delivers complete all-risk emergency service including Paramedic EMS. In the NAFPD, NDF maintains EMS capability at the EMT-II level, but only in an assistance role.

NDF-Staffed All-Risk Stations – NDF fully staffs three 24-hour/seven-day all-risk stations in the Sierra Forest Fire Protection District. However, in the Western Region, some local government cooperators believe it is time for NDF to devolve all-risk emergency service responsibilities to local government. Fire chiefs in this region believe that NDF is not completely capable of continuing to provide effective all-risk emergency service as the Division will find it increasingly difficult to keep up with demanded service levels, increasing training needs, necessary staffing levels and staffing depth.

The Division also minimally staffs a 24-hour/seven day all-risk station in Elko County and a similar station on Mount Charleston in Clark County, relying on volunteer response to complete adequate on-scene staffing.

FEMA Responsibilities – The State of Nevada’s Governor certifies the State Forester Firewarden as the Governor’s Authorized Representative (GAR) empowered to execute, on behalf of the State, all necessary documents for fire management assistance, including requests for Federal assistance and certification of claims for fire management assistance.

In this role, NDF performs as the State's representative to the Federal Emergency Management Agency (FEMA) on all fire management assistance matters.

Recommendation 72: Revisit the rates paid to NDF associated volunteer fire departments with the intent of improving them. Volunteer departments should be compensated equitably when compared with commercial contractors and agency or fire department engines responding through the interagency dispatch system.

Recommendation 73: Establish the NDF fire suppression program on a more stable, statewide base. One might think of this stable base as the Division's basic program or its single, minimum service standard, which would enable NDF to manage its program and resources on a statewide (vs. district-by-district) basis. Accomplishing this objective requires either a shift away from or an adjunct to NRS 473 as the Division's principal organizing and funding mechanism. Specific recommendations are made later in the future strategies chapter.

NOTE: Other, significant recommendations pertaining to NDF roles in all-risk management are contained in the chapter on interagency roles and responsibilities.

Firefighter Safety

Firefighter safety is a critical issue facing the entire U.S. wildland fire community today, and will remain so in the future. All firefighters and fire managers have been sensitized to the safety issue, not only by a growing number of fireline entrapments and fatalities, but by the significant emphasis the interagency fire community, particularly the federal agencies, have placed on firefighter safety in the last ten years. Most recently, the abatement plan associated with the 30-Mile Fire in Washington State has had enormous impact on interagency fire operations. Recently released investigative findings from the Cramer Fire in Idaho and yet-to-be-released findings from the Cedar Fire in California are likely to cause even more impacts on fire operations. However, disturbing reports of serious safety lapses show that the important cultural changes required to improve firefighter safety have not fully taken root in the nation's firefighting community.²¹

Fortunately, NDF has an impressive safety record, a justifiable source of pride for the agency. The Division's concern for safety is well reflected in its policies. However, care must be taken to ensure that the Division's good record does not lead to complacency in field operations. Firefighters face sharply increased risk as the severity and frequency of

²¹ TriData did a four-year study on wildland firefighter safety for the five principal federal agencies that fight wildland fires. The study has many recommendations that are considered by most state and NWCG officials to be applicable to all NWCG agencies. The report is in four phases, and is entitled *Wildland Firefighter Safety Awareness Study*, available at <http://www.nwcg.gov/teams/shwt/pubs2.htm>

fires increase. NDF firefighters are exposed to high intensity fire behavior brought on by declining forest and range health and fuel accumulation. In addition, because of the growing potential for wildland-urban interface fires in Nevada, NDF firefighters will be increasingly exposed to threats associated with fighting fire in the interface, including bulk hazardous materials, toxins, extreme fire behavior, electrical hazards, traffic, and the fleeing public.

In addition to the safety issues posed by inadequate staffing, which were discussed above, there are several other major safety issues that need to be addressed as soon as possible.

Safety Policy and Capacity – It is NDF policy that firefighter and public safety is the Division’s first priority, and that all fire management plans and activities must reflect this commitment (NDF 2003). The Division’s stated policy is consistent with trends in the interagency fire community, where firefighter safety has become a major influence.

Unfortunately, NDF has nearly no resources, either financial or human, to enable field staff to implement through systematic training and monitoring such safety initiatives as Job Hazard Analysis (JHA), chainsaw training and other essential safety concepts and systems. This issue transcends the fire program and represents a Division-wide problem. Just one training and safety officer on the Carson City staff coordinates safety and employee development training for all Division programs and functions. As stated earlier, the Division may need a dedicated training officer and a dedicated safety officer, or an assistant for Training and Safety Officer.

Radio Communication – As discussed in the pre-suppression chapter, an effective communication network is fundamental to firefighter safety. NDF should implement the needed improvements to its radio communication system discussed in Chapter VIII.

Accident and Incident Reporting – NDF policy requires that if an employee has knowledge of an accident or incident involving NDF, the employee shall promptly report the facts in a memorandum. NDF policy also requires that sub-standard or unsafe performance be documented in incident personnel performance ratings. The Division recently implemented standard operating procedures to facilitate accident and incident reporting.

NDF also recently adopted the “SAFENET” process, consistent with other NWCG agencies. According to the Wildland Fire Safety and Health Reporting Network (Bureau of Land Management, 2003), SAFENET provides a method for reporting and resolving

safety concerns encountered in wildland fire, prescribed fire or all risk operations. The information also helps the National Interagency Fire Center collect important safety-related data to determine long-term trends and problem areas.²²

Sources:

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²² The development of SAFENET was a recommendation in Phase III of the previously mentioned Wildland Firefighter Safety Awareness Study conducted by TriData.

X. REVENUE AND BUDGETS

This chapter describes the finances of the NDF Fire Program, including current funding sources and the system by which the Division allocates its revenues to form budgets. The chapter also provides information on how fire programs are funded in other western states.

The consulting team was surprised both by the complexity of the Division's funding and by the rudimentary nature of the NDF budgeting system. Data that we had expected to obtain and analyze were unavailable. It is difficult to account for all of the Division's revenues and expenditures from a single data source. Consequently, our analysis of NDF finances is limited to that which the available data can support. Improvements to budget data are among the priorities for the future fire program.

Fire Program Funding

The Nevada Fire Program is funded from four principal funding sources:

- **STATE GENERAL FUND:** Funds provided by the state legislature from general state revenue.
- **FEDERAL FUNDS:** Funds provided by a federal agency for on-going interagency operations or one-time projects. (In today's operating environment, most federal funds come from grant sources.)
- **COUNTY FUNDS:** County payments for State operation of NRS 473 districts. Counties with NRS 473 Districts use a variety of funding options depending on their situation and needs. Funds provided by counties become part of the NDF forestry program budget and are used to provide services at the district level.
- **SUPPRESSION COLLECTIONS:** NDF provides fire suppression assistance to cooperating agencies and is reimbursed per cooperative agreement. Where possible, NDF also collects fires suppression expenses for NDF fires caused by negligent actions.

Budget System

Funds from the four sources described above flow into the following four budget (expenditure) categories directly related to the fire program:

- General Forestry (BA 4195). This budget account covers administration of all forestry programs including fire. Funding is primarily from the State General Fund and federal funds from grants, with other, incidental amounts coming from product sales, transfers from other funds, etc.
- Suppression (BA 4196). This budget category covers fire suppression and other incident-driven costs not included in the base budget and is funded from the State General Fund, and
- NRS 473 Districts (BA 4227). This budget category is funded by tax district revenues provided to the NDF for fire district operations.
- Honor Camps (BA 4198). This budget category covers the administration of the Conservation Camps, and is funded by the State General Fund (under a separate allocation) and receipts for work performed by camp crews.

The consulting team found the NDF budgeting system unusual and unlike similar state agencies. The NDF budgets the operations of a moderately complex organization with multiple, diverse programs and a wide array of federal fund sources from just four budget categories.

For each budget area, a “fund map” lists revenues by specific source. A section of the budget showing planned expenditures provides a breakdown by position and lists other planned expenditures for standard state accounting categories.

It is important to note that the general forestry budget (BA 4195) is not program specific. There are no sub-categories showing allocations for each major NDF program element (e.g. fire) or showing what could be considered “base level operations” versus “one-time” federally funded projects. Staff sections such as Information Technology and Communications, and Regional Offices, receive allocations of the Division budget, and Regional Offices are responsible for management of NRS 473 district budgets.

NDF does not use a formal work planning system that is linked to its budget system. Supervisors communicate work objectives and monitor completion and accountability without benefit of a formal work plan.

One might have expected that BA 4195 would include sub-accounts at least dividing the budget between the Fire and Resources programs. Given the current approach and the variety of federal funding sources, each with differing purposes and use parameters, it is

difficult to accurately determine the Division's base level fire program costs. (A "base level" budget is what the Division requires to fund its core fire protection program, excluding one-time project and pass-through money.)

The Division essentially uses a "lump sum" approach to budgeting, funding multiple programs from a few large "pots" of money. This approach has the advantage of simplicity, but makes it difficult to quantify the impacts of decreased or increased program budgets.

Recommendation 74: Establish a budget system that allocates NDF's funds to major program budgets (Fire, Resources, Administration, etc). Most state agencies have a budget for general administration that covers the costs of services provided across all activities (personnel, purchasing, etc). This would require keeping a portion of the Forestry budget at a general level. Beyond the administration budget, assign as much of the Division's revenues as reasonable to program-specific budgets for fire, resources and other programs as deemed necessary. Further allocate program-specific budgets to staff sections and field units.

Recommendation 75: Define a base level fire program budget describing what NDF requires to fund its core fire protection program, excluding one-time project and pass-through money.

Recommendation 76: Develop a work planning and monitoring process that is linked to program-specific budgets.

Recommendation 77: Revenue produced by the Conservation Camps that exceeds what is needed to pay for the operation of the Conservation Camps should return to the Camp program (and not the State General Fund) and used for the purposes of off-setting the costs of vehicle replacement. As discussed earlier, the camp program is underfunded, and it merits not only adequate equipment but also expansion. All revenues generated by camp crews should remain within the camp program.

State General Fund

As noted above, the NDF receives an allocation of money from the State General Fund that pays for the general administration of all state forestry programs (BA 4195). The NDF primarily uses its BA 4195 funds at the State Office and at regional offices for general administration, oversight, and support of all NDF programs including fire, resources, stewardship, conservation camps, etc. In 2003, Budget Account 4195 totaled \$9.968 million, of which \$3.429 million came from the State General Fund. The portion of BA 4195 that is not from the State General Fund primarily comes from federal grants.

The NDF also receives an annual State General Fund appropriation of \$1 million for fire suppression and other incident response expense (Budget Account 4196.) This “suppression fund” covers expenses not included in the Division’s operating budget. Since this amount often falls considerably short of actual incident response expenses, NDF typically needs an annual supplemental appropriation of between \$1 million and \$5 million to balance the fund.

The Division receives a separate State General Fund appropriation to operate the work program at the ten conservation honor camps. (BA 4198) The NDF provides a work program, and employs the honor camp crews to undertake non-fire related project work for public and private sector customers, and as firefighters. The total FY 2003 budget for the camp program is \$6.856 million, of which \$4.659 is from the State General Fund. The remaining revenue for the camp program comes from receipts for work performed for program customers, including the NDF fire program.

Table 4 summarizes the mapping of the State General Fund monies in the NDF budget categories.

Table 4: Distribution of State General Fund to NDF FY2003 Budget Categories.²³

Categories	Funds
General Forestry (all programs)	\$3,429,448
Suppression Fund	\$1,000,000
Honor Camps	\$4,659,437
Total State General Fund	\$9,088,085

Federal Funds

The NDF aggressively pursues federal grants and other federal funding to enhance the fire mission and other missions of the Division. Some federal funding is on-going and could be considered part of the NDF base budget. The remaining are “one-time” funds provided for a specific project. The federal funds received become part of the General Forestry Budget (BA 4195). Some of the federal grants provide pass-through funding assistance to entities such as volunteer fire departments for purchase of personal protective gear and other equipment. For FY 2003 the NDF had 17 separate federal grants or other federal funding listed as revenue for BA 4195, totaling \$5.645 million. (See Table 5.)

FEMA Fire Management Assistance Grants provide for fire suppression assistance for fires threatening life and property that meet FEMA criteria for a “fundable” fire. When FEMA funds a fire on NDF jurisdiction, the monies are routed into the fire suppression account to offset state suppression expenses (BA 4196). When FEMA-funded fires burn on the jurisdictions of other agencies (excluding federal agencies), FEMA funds are routed to the appropriate agency to offset their costs. Federal grants provide assistance directly to volunteer fire departments to purchase equipment such as personal protective equipment for both wildland and structure firefighting. The NDF also receives federal funds from the USDA Forest Service and USDI Bureau of Land Management to fund specific cooperative projects and positions, such as dispatchers serving in interagency dispatch centers. Grants and other federal funds become part of the General Forestry Administration Budget.

Table 5: Federal Funding for FY2003 in BA 4195 (General Forestry)²⁴

Revenue ID	Name	Amount	Program Description
3485	Toiyabe NF Reimbursement*	\$120,000	Fire – Interagency Operations
3470	Humboldt NF*	60,000	Fire – Interagency Operations
3539	Volunteer Fire Assistance	95,218	Fire – Pass-through funding to volunteer fire depts.
3545	Forest Health Management	62,186	Non-fire
3547	State Fire Assistance	463,961	Fire – General assistance to fire program.
3580	USFWS	342,000	Fire – Assistance to fire program.
3581	Sierra Front Grant	49,800	Fire – Fire coordination
3582	Urban Forestry	388,320	Non-fire
3583	Forest Education	28,547	Non-fire
3584	Rural Fire Assistance	62,458	Fire – Pass through funding to local fire agencies.
3585	Stewardship	272,359	Non-fire

²³ Source: NDF FY2003 Fund Maps

²⁴ Source: NDF Fund Maps and grant descriptions. Some of the listed programs funded by grants were not described.

Revenue ID	Name	Amount	Program Description
3586	National Fire Plan	3,293,360	Fire. One-time projects including contract fuel reduction, urban interface prevention, communications equipment, and additional staff and operations. Pass through funding for fuels reduction projects managed by local entities.
3587	U&CF (Title 8)	49,890	Non-fire
3588	BLM Rural Planning	275,000	Non-fire
3589	USFS Bio Mass	30,000	Non-fire
3590	USFS Legacy	40,000	Non-fire
3591	USFS Fuels Reduction	112,000	Fire – One-time fuels reduction project work
Total		\$5,645,099	

* The Humboldt and Toiyabe NFs are combined for administrative purposes.

The federal portion of the 4195 budget is dependent on the funding approved by the federal agency funders. Federal funding has become increasingly variable in recent years, and there is no guarantee that funding will be available at the FY2003 level in the future. While some categories could be considered part of the NDF historic funding level for fire suppression operations, much of the federally funded part of the budget is earmarked for specific projects. Categories 3485, 3470, 3547, 3580 and 3581, which make up less than 20% of the federal portion of the NDF budget, might be considered to be on-going, and are likely to be used for base level fire operations. Loss of this funding would severely curtail NDF fire suppression capability. The remaining 80% might be considered to be of a “one-time project” or “pass-through” nature, and more subject to variation from budget cycle to budget cycle. Loss of this funding would severely reduce the NDF’s capacity to provide fire prevention information and reduce fuels, but may not directly affect fire suppression capability in the short term.

County Funds

Eight of the 17 Nevada counties have formed “NRS 473 districts” in which NDF is responsible for direct provision of fire services. In these districts, the NDF may provide fire protection and other emergency services at a cost and level of service agreed between NDF and the District Board.

Under NRS 473, counties collect money in the form of ad valorem and other taxes, and forward it to NDF for the Division to provide fire and other risk services. The program is flexible, in that multiple funding options are available to a county for services provided by mutual agreement. One or more service elements (e.g. emergency medical service) may even be contracted to a third party. However, this flexibility has a major downside in that it has led to significant differences between districts in how they are funded and how they operate. It also makes it more challenging to understand the program funding.

NRS 473 was originally established to enable those forming districts to benefit from federal Clarke-McNary Act (CM2) funds that were then available to states for wildland fire protection. The CM2 funding source has since become minimal, largely replaced by funding sources available under the National Fire Plan Act.

Table 6 shows the funding provided to operate each NRS 473 district and its corresponding level of service. The total revenue provided by NRS 473 districts in FY2003 was \$9.182 million, about the same level of funding provided by budget account fund for the fire program.

Table 6: NRS Fire Protection District Revenues and Total Budgeted Expense by County - FY2003 (thousands of dollars).²⁵

Fire Protection District	County	Private Acres Protected	Service Level	Ad Valorem Taxes Collected	Consolidated Tax	General Fund	Other ²⁶	Total
Sierra FFPD	Washoe	604,894	All Risk	\$2,830	\$1,153	\$0	\$2,104	\$6,087 ²⁷
Sierra FFPD	Douglas	67,704	Wildland	245	252	0	170	667 ²⁸
Sierra FFPD	Carson	13,686	Wildland	76	293	0	84	453
Storey FFPD	Storey	25,130	Wildland	0	0	71	199	270
Mt Charleston	Clark	1,800	All Risk*	372	104	180	28	684
Eureka	Eureka	398,272	All Risk*	0	0	119	0	120
White Pine	White Pine	846,576	All Risk*	0	0	102	0	102
Elko	Elko	1,638,637	All Risk*	0	0	780	20	799
Total				\$3,523	\$1,802	\$1,252	\$2,604	\$9,182

* Relies on Volunteer Fire Departments on all incidents.

²⁵ Source: NDF BA 4227 Fund Map and county budget documents

²⁶ Includes reserves and miscellaneous funding sources.

²⁷ Includes \$660,000 for new engines, \$93,000 for command vehicle and a \$1 million set aside for station remodeling. These are one-time costs above normal operating budget level.

²⁸ Total budget shown. \$505,000 goes to contract non-fire risks to the East Fork District. This is shown in BA 4227 but is not available to NDF wildland fire operations.

The level of service provided in NRS 473 districts ranges from coordination and assistance of local volunteer fire departments, to seasonal wildland fire protection, all the way to all-risk, municipal-style emergency services.

Within the NRS 473 districts, NDF covers non-budgeted response costs due to fires or other emergencies from the BA 4196 Suppression Fund. The NDF may also provide assistance to counties outside of NRS 473 districts on a “pay-as-you-go” basis.

Ad Valorem Taxes – The counties fund the NRS 473 districts through a variety of funding sources, including ad valorem taxes on real property (buildings and land). Funding with ad valorem taxes causes the funds to follow a circuitous route from the taxpayer to the NDF. The County collects the taxes and forwards the total amount to the Nevada Department of Taxation. The Department of Taxation divides and distributes the money to the appropriate agency, which in the case of NRS 473 districts goes back to the County. The County then forwards the money to NDF to be used for the agreed upon service. In some cases, the level of service has been renegotiated to match the County’s taxing ability, with some service components contracted back to the county or to another district.

The Division’s dependence on ad valorem taxes puts it at a disadvantage. Only the Sierra Forest Fire Protection District generates sufficient revenue to fund a credible fire management system.

County General Funds – Counties may also elect to fund NRS 473 districts using county general fund money. Elko, Eureka and White Pine Counties use this option. When funding NRS 473 districts from County General Funds, the counties forward funds directly to the NDF.

Regional Variation

The robustness of funding relative to needs varies dramatically across the NDF regions. The revenues available to the NDF in the Western Region are rising because taxable valuations are increasing due to increasing urbanization. In contrast, the other two regions have depressed and declining revenue bases.

The NDF Northern Region protects the Northeast Area, Eureka, and White Pine Fire Protection Districts, all of which are chronically under-funded. All three Northern counties fund their NRS 473 districts from county general funds. According to NDF

employees and cooperators, none of these counties provide adequate support for the fire protection districts, and are not in the position to increase this support. All three counties encourage the NDF to bring in a flat or reduced budget, due to declining tax revenues. White Pine County is in a financial crisis, and anticipates a continued decline. Though a recent review indicated that the cost appropriation between the NDF and BLM was appropriate, there is a possibility that the BLM will eventually come to the conclusion that current financial arrangements are not in the BLM's interest.

The Northern Region fire program budget was cut four years ago, and has remained flat. The rural Nevada counties in the region cannot provide additional funding to make up the difference. The supplies and materials budget for the Northeast Fire Protection District is \$75,000, which goes toward support of 23 fire stations and 150-200 firefighters. In White Pine County, the NDF maintains a total budget of \$100,000. After salaries, benefits, and assessment the budget is only \$20,000 to support seven fire departments. At this level, a single radio repair could exhaust the budget.

One cooperator described the Northern Region's funding as "a house of cards," and pointed out that even small budget cuts from any source would cause large downstream impacts on the NDF. In this region, the NDF depends on funding from a contract with the Forest Service; ad valorem taxes from Elko, Eureka, and White Pine Counties; and billings from fire response into BLM exchange zones.

Some Northern Region fire departments have essentially no budget, which causes the Division to struggle to do more than light and heat stations, respond to emergencies, and provide some training. Consequently, the NDF-associated fire departments lack essential safety equipment, including PASS devices and adequate communications equipment. Local fire departments cannot refill fire extinguishers. Their self-contained breathing apparatus go un-inspected and un-serviced. Fire departments under the NDF umbrella have no access to a communications technician to maintain what radio equipment does exist.

The NDF Southern Region supports just one small fire protection district in Nevada's wealthiest county. The Mount Charleston Fire Protection District (MCFPD) is too small to pay for its own operations. Consequently, the NDF engine in the MCFPD is minimally staffed, and a second station and engine on Mount Charleston are not staffed at all. Due to a lack of resources, no NDF employee holds company officer rank, and the regional Fire Management Officer has been effectively functioning as a Battalion Chief or

Captain. The NDF operation in the MCFPD remains wholly dependent for direct material support from the Clark County Fire Department in addition to the funding received from Clark County ad valorem taxes.

Suppression Collections and Costs

NDF bills cooperators for NDF and local government resources dispatched to cooperator's incidents. NDF also bills responsible parties for fire costs on fires caused through negligence. In some cases, the billed amount exceeds the out-of-pocket cost to the state. This creates net income to the 4196 suppression account and is used to reduce supplemental appropriation needed to balance the account each fire season. For example, inmates on crews are paid \$1/hr but billed at minimum wage, creating a net income to the account, though, the difference is approximately equal to the investment in training and equipment needed to make the crews available, which was provided by the State General fund in the first place.

Table 7: Summary of Collections FY2003

Billed Party/Event	Funds (\$)
NASA – Columbia Recovery	\$515,364
Exotic New Castle – Disease Response	77,800
Fire Suppression	1,944,801
Total Reimbursed	\$2,537,965

Other Funding Notes

The NDF earmarks all funds raised in a district for use in the fire protection district except for a small percentage that goes to NDF or other state agencies for program administration. Administrative fees from all County funds totaled \$342,000 in FY 2003 of which a little over \$239,000 was transferred to BA 4195.

All tax districts in Nevada receive a share of the Consolidated Tax, as determined by the Nevada Department of Taxation. The Consolidated Tax includes taxes on cigarettes, liquor and other “luxury” items and is provided to offset the need to raise local taxes.

One additional funding source is Assembly Bill 104 money. AB 104 implements the legislature's desire to provide some equalization between adjacent counties with very different tax bases.

Unused county funds may be held over to form a budget reserve. In FY 2003, several counties are using reserves to partially fund their annual budget.

Many projects are funded on a cooperative or creative basis using a combination of county, state general, federal and cooperator funding. For example, NDF purchases some engines with general fund money and places them in a district. In other cases, the NDF obtains FEPP equipment, re-develops it using county and general fund money and provides the equipment to districts.

There is no current mechanism for funding NDF assistance from the Suppression Fund (Budget Account 4196) to counties outside of the NRS 473 districts. Assistance can be provided under cooperative agreement on a billable basis.

All boundary fire suppression costs within a NRS 473 district are shared based on land ownership/protection responsibility (i.e. state and private vs. federal.) There appears to be no exchange of protection or agreements whereby an agency is responsible for all fire costs within a zone regardless of ownership.

Increasing Fire Costs, Decreasing Budgets – There is anecdotal evidence that fire costs are increasing for all wildland fire agencies as fire suppression actions become more expensive due to expanding urban interface areas, which lead to higher structure protection costs.

Data to support the increasing NDF fire costs is difficult to determine because NDF does not track individual fire costs, showing both NDF and non-NDF expenditures on a routine basis. All out-of-pocket fire costs, such as employee overtime, contracted services equipment rental, aircraft costs, etc, due to a particular fire are charged to the BA 4196 Suppression Account, but are not tracked on an individual fire basis.

Costs of certain billable fires are manually extracted as needed to provide documentation of costs billed to the responsible parties. FEMA requires similar documentation of costs for FEMA-recognized Fire Management Assistance Grant fires. The Suppression Account is used as a clearing account for costs billed to cooperating agencies for NDF assistance.

Recommendation 78: Implement a system that captures all individual fire costs (both NDF and non-NDF) using the existing state accounting system or other means.

Depending on the state's accounting system capability, it may be possible to capture all costs of individual larger fires or groups of smaller fires using project level cost centers.

This data would enable determining cost trends, would provide accurate billing information for assists to other agencies and billable fires, and minimize the need for manual manipulation of financial data. The data on fire costs also is needed to examine fire suppression/fire prevention tradeoffs, and may justify greater prevention and mitigation efforts or faster initial attack. (This was the case in the State of Washington from our study there.)

Declining NDF Budgets – There is a perception that the NDF general fund budget has been declining in recent years. A more accurate statement is that NDF has been directed to develop budget proposals showing no increase from the prior year, and absorbing some increased salary costs. In effect the purchasing power of the available funds has declined due to inflation while the total budget amount has remained about the same.

As has been argued throughout this report, the NDF fire program lacks essential resources, and that directly leads to many of the most serious challenges faced by the Division fire program and to negative perceptions held by some of the Division's cooperators. The NDF does an admirable job considering the scope of its responsibilities and its minimal resources.

Comparison of Nevada vs. Other States Wildland Organizations

In this section we discuss how other state natural resource agencies organize and budget their fire management programs.

Revenues and responsibilities of the NDF fire program are compared to those in three other western states: Utah, California, and Montana.

The NDF's statewide charge to protect all non-federal and non-municipal lands is an appropriate mission, and similar to that of numerous other state forestry and fire agencies in the western United States. The use of cooperative and intergovernmental agreements with local volunteer fire departments is also done by state wildland fire agencies in the other western states. That part of the NDF system seems appropriate as well. However, the level to which the NDF is able to support this fundamental part of its protection system remains inadequate due to minimal staffing and funding.

The NDF makes extensive use of inmate labor in its fire program, which is unlike most states, but similar to the California Department of Forestry and Fire Protection (CDF), and the Washington Department of Natural Resources (WDNR)

In terms of mission, the NDF fire management program may best be compared to the CDF and the Utah Division of Forestry, Fire and State Lands. These organizations are charged with statewide protection of non-federal and non-municipal lands with emphasis on protecting watershed, but only the CDF shares the NDF authorization for delivering the services of a municipal fire department. However, the CDF does so only under contract. We have included the Montana Department of Natural Resources and Conservation as an additional example to illustrate an agency funded in part by statewide assessment of fees, an alternative that the State of Nevada might consider.

It should be noted that none of these other states' fire programs are completely satisfied with their current mechanisms for funding their organizations.

Utah –The Utah Division of Forestry, Fire and State Lands is responsible:

...to determine and execute the best methods of protecting private and public lands by preventing and suppressing fires on non-federally owned forest, range, and watershed on unincorporated areas of the state.

PROTECTION SYSTEM: The State pays for protection of state lands and must assure that county fire programs are adequate. The State employs District Fire Wardens in most counties who are responsible to the Department and the county for managing initial attack resources. The State maintains close cooperative relationships and agreements with all the counties and federal agencies in the State. When fires exceed local capabilities the State provides resources from cooperating agencies. The Department is directed by State law not to be involved in structure fire suppression.

REVENUE – BASE PROGRAM: The Department Headquarters and District Fire Wardens are funded with general fund dollars. Initial attack is provided by local government volunteer and paid fire departments. In order to qualify for State assistance for escaped fires, each county is required to budget an amount for fire suppression. The minimum is \$5000. The budget is based on the average expenditure for the last seven fire seasons, excluding the high and low year. The county suppression budgets range from \$5000 to about \$100,000 per county. All but two counties are enrolled in the program.

REVENUE – EMERGENCY FIRE SUPPRESSION: The state assists enrolled counties by paying costs of escaped fires from the emergency fire fund. Money in the fund comes from assessments on private lands outside of cities. The assessment is one cent per acre and one mil of property value. The fund raises about \$1 million annually, which is matched with an equal amount from the State general fund. The fund is capped at \$8

million per year. It has been fully depleted in recent years. The State General Fund has paid 100 percent of the amount needed over the emergency suppression fund, although under State law the counties could be held responsible for half that amount.

As with other states, the Department aggressively pursues FEMA Fire Management Assistance Grants for fires threatening to become major disasters.

Managers at Utah Division of Forestry, Fire and Lands feel the current funding system is inadequate because the fund has not been meeting needs for the last several years. They are exploring other options.²⁹

California – The California Department of Forestry and Fire Protection is required to protect State and privately owned watershed lands as designated by the State’s Board of Forestry. The law defines watershed lands as:

...lands covered in whole or in part by forests or trees producing forest products. Lands covered wholly or in part by timber, brush, undergrowth, or grass, whether of commercial value or not, which protect the soil from excessive erosion, retard runoff of water or accelerate percolation...Lands in areas which are principally used or useful for range or forage purposes, which are contiguous to the lands described. Lands owned or controlled by the federal government or within the exterior boundary of cities are excluded.

PROTECTION SYSTEM: The watershed lands, known as the State Responsibility Area, cover 31.3 million acres. The Department protects 27.7 million of those acres directly and contracts for the remaining acres to six counties. The Department is authorized to provide up to full service fire protection for cities, counties, and fire districts. This adds about 11 million acres of direct fire protection.

REVENUE – BASE PROGRAM: Until recently the CDF fire program was funded almost entirely from the State General Fund. The draft 2003 budget appropriation bill requires that \$50 million (about 10 percent) of the base budget come from fees. A fee schedule and mechanism for collection have not yet been determined.

For “Schedule A” areas where CDF contracts to provide fire or other emergency services, the local government pays for the resources provided by CDF plus an administrative fee. The local government retains full accountability. The contract specifies the type and

²⁹ Sources: Personal Conversation: Dave Dalrymple, Fire Suppression Coordinator, UDFFSL 9/9/03. Fire in the West, 5th Edition, William C. Teie and Brian F Weatherford.

location of resources to be provided by CDF. The standard of service is dependent on the contracting entities ability to pay.

REVENUE – EMERGENCY FIRE SUPPRESSION: The State General Fund pays for the cost of escaped fires in the CDF responsibility area and contracted areas. As with other states, the Department aggressively pursues FEMA Fire Management Grants for fires threatening to become major disasters.³⁰

Montana – Montana codes state:

The Department of Natural Resources shall protect the natural resources of the State from fire and that the Department is responsible for protection of all forestlands in the State that are officially classified by the Department as forest lands....

PROTECTION SYSTEM: The department provides fire protection for 5.1 million acres of classified forested lands through an organization of permanent and seasonal firefighters. The department also assists counties in protection of another 45.3 million acres of range, agricultural, and other lands. All 56 counties have been accepted into the county fire assistance program. Counties are required to maintain a specified initial attack force and are provided with some state equipment. When county capabilities have been exceeded, the state provides assistance in the form of advisory personnel and pays for fire fighting resources needed beyond those available in the county. The department provides or may assist with structure protection (stopping a fire from approaching a structure) but does not provide any form of structure fire suppression (fighting a fire in a structure).

REVENUE – BASE PROGRAM: Montana funds wildland fire protection through a combination of assessments on forested lands, General Fund dollars, and federal dollars. Montana codes require that landowner assessments cannot exceed one third of the total appropriation established for each biennial budget. The total appropriation comprises about 10 percent federal money in a typical year. There is no assessment on non-forested lands. The landowner assessment on forested lands is determined by adjusting assessment rates on an annual basis to equal one third of the total appropriation for the program. For 2002 the assessment was 18 cents per acre or 30 dollars per tract for tracts under 20 acres in size. The base budget funding was approximately 33 percent landowner assessments,

³⁰ Sources: Personal Conversation: Dan Lang, Administrative Captain, CDF. Fire in the West, 5th Edition. William C. Teie and Brain F. Weatherford. CDF Presentation to the Assembly Budget Sub-Committee April 3, 2002

57 percent State general fund, and 10 percent federal money. National Fire Plan money is not included in the assessment calculation.

REVENUE – EMERGENCY FIRE SUPPRESSION: Emergency fire suppression is funded through the State General Fund through a special appropriation process. As with other states the Department aggressively pursues FEMA Fire Management Grants for fires threatening to become major disasters.

Montana is actively exploring other methods and state/landowner ratios of funding for wildland fire protection. The legislature has expressed a desire to see more funding from landowners, particularly in interface areas, and less reliance on General Fund dollars.³¹

Cost of Future Budget: Recommendations

To summarize, the NDF operates on an annual budget of approximately \$29.5 million. The Division's general forestry budget (Budget Account 4195) is not program specific, and there are no sub-categories showing allocations for each major NDF program element (such as fire.) Consequently, budget recommendations made here are described as a percentage of the entire NDF budget.

The general forestry budget (Budget Account 4195) for FY 2003 totaled \$9.968 million, of which \$3.429 million (or 34%) comes from the State General Fund, with the remaining 66% funded by federal grants. Considering the instability of federal funding, this is cause for concern. For FY 2003 the NDF had 17 separate federal grants and other federal funding (BA 4195) totaling \$5.645 million.

The Division receives a separate State General Fund appropriation (Budget Account 4198) to operate the work program at the ten conservation honor camps. The FY 2003 budget for the camp program was \$6.856 million, of which \$4.659 million (68%) is from the State General Fund. The remaining revenue for the camp program comes from receipts for work performed for work program customers, including the NDF fire program. To preserve the fire availability of the camp crews, no more than 50% of the camp program's revenue should be generated through project receipts, and therefore, State General funding to Budget Account 4198 should be increased proportionately.

³¹ Sources: Personal conversation: John Monzie, MDNRC Fire Suppression Section Supervisor 9/11/03. Fire in the West, 5th Edition, William C. Teie and Brian F. Weatherford.

NDF also receives an annual State General Fund appropriation of \$1 million for fire suppression and other incident response expenses (Budget Account 4196.) This “suppression fund” covers expenses not included in the Division’s operating budget. Since this amount often falls considerably short of actual expenses incurred, NDF typically needs an annual supplemental appropriation averaging \$3 million to balance the fund.

The total revenue provided by NRS 473 districts (Budget Account 4227) in FY 2003 was \$9.182 million, roughly the same amount provided to the NDF fire program from the State’s General Fund.

The recommendations made in this report will enable NDF to better fulfill its current fire prevention, training, and fire suppression responsibilities. The recommendations also will help improve the capability and resources needed to address the State of Nevada’s wildland and wildland-urban interface problems. To fully fund the recommendations made in this report, the following additional funding would be needed:

- \$880,000 in one-time costs
- Additional \$3.7 million in annual operating expenses
- Approximately \$7 million per year in emergency response costs.
- In addition, some recommendations require further consideration, and could require several million in additional annual costs.

Many of the costs are because NDF is under-resourced to meet its current responsibilities or to protect a large portion of Nevada.

Recommendation 79: The Nevada Legislature should increase the NDF budget annually by \$15.4 million (52%) and provide \$880,000 in one-time costs for implementation in the next biennium. This increase in current dollars is not so large in light of the issues faced, and the decline in the budget for a number of years. Also, the recommended increase includes \$6 million/year in contingent emergency response funds, enabling the Division to provide assistance to every county in Nevada when major fires strike. Dollar estimates for each recommendation are provided in the last chapter, along with a list of all recommendations and our suggested prioritization for them. There was insufficient information to cost all of the recommendations, but it is clear that a major increase is needed in the fire program budget to adequately serve the State.

XI. ORGANIZATIONAL STRATEGY FOR THE FUTURE

This chapter presents a vision and a set of alternatives for shaping the NDF organization and mission going into the future.

Summary of Current Mission

As has been described throughout this report, NDF has a complicated fire management mission in a complex interagency environment. The Division simultaneously—

- directly delivers wildland fire protection both with NDF career resources and through cooperating volunteer fire departments;
- provides varying levels of structure fire protection, emergency medical service, rescue, and hazardous materials response in four of its eight districts;
- provides the critical interface between local governments and the federal government for all matters pertaining to wildland and wildland-urban interface fire protection;
- administers, in cooperation with the Nevada Department of Prisons, 10 Conservation Honor Camps, providing for the training and use of inmates assigned to conservation camps in conservation work and as a primary source of fire crews for all wildland fire agencies operating in Nevada;
- serves as the Governor's Authorized Representative (GAR) to FEMA, effectively the gatekeeper to federal fire assistance and certification of claims for fire management assistance;
- supports local government by paying all-risk incident response costs, including fire suppression, in eight Nevada counties and, from time-to-time, bears the cost of mutual aid, mobilization and other large fire support to non-NDF districted counties, without legislative funding to pay for this emergency response.
- prevents fires and mitigates fire hazards on private lands, through fuel treatment and outreach education;
- has taken on the emergent issue of a comprehensive strategy for mobilizing fire department resources regionally, statewide and interstate;

Over time, the NDF fire management mission has evolved in response to a mixture of needs perceived both within the organization and by external stakeholders. Rather than being a single-minded, one-size-fits-all bureaucracy, NDF has tailored its program to the various, changing needs across the state. Consequently, the NDF fire program has resulted as much from incremental additions to the mission as from a comprehensive, systematic strategy.

NDF leadership itself perceives a degree of disarray if not chaos in the NDF fire protection program when viewed from a statewide perspective. NDF's three regions each face similar resource management and fire protection issues, but the Division has at least three different approaches to carrying out its mission among the regions. Within and between regions, NDF fire districts vary greatly in size, population, economic development, county resources, fire environment, values at risk, local fire department capabilities, and political climate. Given this dramatic variation, the Division's fire protection districts function in some ways as if they were eight unique fire programs.

Interagency cooperation and reciprocity at the local level is required for an efficient and effective fire protection system. However, many of the Division's cooperators believe that the variety of NDF approaches across the state leads to an unclearly defined fire protection system, and that NDF needs to establish a strategy by clarifying its mission, developing an organizational vision, and planning around those elements. NDF needs a statewide, strategic fire plan integrated with its natural resource objectives, and an organizational structure able to produce a consistent, comprehensive fire protection system across NDF districts and regions.

The Role of NRS 473 – Throughout the state, local government cooperators find the NDF mandate and legitimate role in NRS 473 districts is unclear. There is confusion over authority and jurisdiction, and NDF's relationship to the county.

Though NRS 473 has less impact on them, the Division's federal cooperators also take issue with NRS 473, because the patchwork of NDF districted and non-districted counties complicates the interaction between the federal agencies and the state and local governments. Consequently, federal agencies support the concept of fully implemented statewide authority for NDF.

Role of NDF All-Risk Emergency Management – The evolution into all-risk emergency service has contributed to the lack of clarity about the NDF mission. In places, NDF involvement in all-risk emergency service has created overlapping and

duplicated efforts. The all-risk emergency service portion of NDF's mission also tends to dilute the agency's core mission.

The Division's federal agency cooperators believe that by transitioning out all-risk emergency services, NDF would better align itself with the missions of federal wildland fire agencies.

Outside the Northern Region, most local cooperators, too, believe that NDF is "off-mission" in providing all-risk emergency services. Many local cooperators believe that NDF is not capable of continuing to provide effective all-risk fire protection because it cannot keep up with the staffing needed.

NDF has encountered a strategic decision point in regard to all-risk emergency services in the Sierra Forest Fire Protection District, and is nearing that same point in the Mount Charleston Fire Protection District.

Financial Differences – The combination of a complex mission combined with a lack of financial resources causes friction and financial differences between NDF and its cooperators, and complicates interagency relationships. As noted in the Revenues chapter, money constantly goes back and forth between NDF and its federal cooperators, and the Division's county funds further complicate these transactions. Consequently, there is a perception among the Division's cooperators that NDF must dispatch resources to federal agency fires to survive financially, and this, too, has implications for interagency cooperation, as federal officials grow wary of compensating NDF for its assistance.

Lack of Analysis – NDF carries out a complicated mission in a complex interagency environment that is made more difficult by an obsolete mechanism for establishing the Division's jurisdiction and funding and by the unconventional "all-risk" mission. It is difficult to gain an accurate statewide perspective of the fire problem because NDF collects little data on its performance and lacks a level of analysis necessary to know where the Division's services are most needed, and at what level.

NDF would probably best serve Nevadans if the Division were responsible for fire protection on all state and private lands in Nevada not protected by agencies of the federal government or within the boundaries of incorporated cities.

Regaining Focus

The State of Nevada has charged NDF with responsibility for supervising and coordinating all forestry and watershed work on state and privately owned lands in Nevada, including fire control. There also exists a compelling State interest to protect watersheds, critical wildlife habitat, parks, and other economically important lands in Nevada. NDF would do well to regain focus on the legislatively mandated portion of its mission.

The State Forester Firewarden has received firm guidance from the Governor and appears to have a clear direction in mind for NDF. The Governor's direction includes:

- establishing NDF as a fiscally accountable agency,
- establishing a clear sense of organizational purpose,
- returning NDF to its traditional role and purpose,
- devolving responsibilities to local government where and when possible, and
- requiring local government to bear financial responsibility where they desire responsibility (jurisdiction).

In addition, the State Forester Firewarden intends to:

- build-up the long-neglected resources side of the NDF organization,
- integrate NDF fire and resource programs,
- establish an NDF sense of identity, with both its employees and the public,
- transition out of the all-risk emergency service mission, continuing to provide all-risk services only as a transitional role where necessary and only in places where NDF is already providing these services, and
- establish NDF wildland fire (not all-risk emergency service) jurisdiction and service in the nine Nevada counties where NDF currently does not.

These directions all are sound. Toward achieving these ends, we make the following recommendations:

Recommendation 80: Seek legislation that revises or replaces NRS 473 with legislation that clearly establishes NDF authority, responsibility, and jurisdiction in Nevada Revised Statutes. Fund the NDF fire protection system through a sustainable mix of state

and local taxes and fees. The Division's authority, responsibility and jurisdiction must be clearly codified in statute. The backbone infrastructure of an effective, comprehensive fire protection system should be provided via state funding.

Recommendation 81: Undertake immediate efforts to improve lines of communication between the state office and the Division's field personnel. Once a unifying vision for the Division's fire program becomes clear, NDF should articulate the strategy to all its employees. Employees likely to be affected by strategic initiatives, particularly those involved with the Division's current all-risk emergency services should receive special attention: keep them informed.

Alternative Organizations for the Future

There are many models that could be considered for the future organization of NDF. We discuss a variety of strategic options below, including those our study team thought were the best in light of all the findings of this study.

Option 1. Maintain the Status Quo – The baseline model is to keep things as they are. This model assumes that the future role of NDF will be to continue as a combined agency, providing to varying degrees and by various mechanisms (a) wildland fire protection services to the existing NRS 473 districts in Carson City, Clark, Douglas, Elko, Storey, Washoe, and White Pine Counties and (b) all-risk emergency services in four of the eight NDF forest fire protection districts. The agency would essentially remain a local response agency funded by county taxes with large fire support resources, including conservation camp crews, aviation assets, and some supervisory personnel funded by the state.

Option 2. Maintain Current Roles but Withdraw from Sierra Forest Fire Protection District; Continue Some All-Risk – In this model, the future of NDF would primarily be as a wildland fire agency, covering lands outside the urbanizing Sierra Front region. The Division would retain its present role in Clark, Elko, Eureka, and White Pine Counties, as well as continue its transitional all-risk emergency service role until these responsibilities can be devolved to the counties.

However, NDF would withdraw completely from the SFFPD, and turn all fire protection services including wildfire initial attack over to local government entities, as has been suggested by some local government fire officials, who believe they can provide service equal to what NRS 473 districts receive from the NDF at the same or lower cost. Under such an arrangement, and out from under the NDF umbrella, the SFFPD and its agents would pay the NDF or federal agencies for large fire support on a "cash and carry" basis.

The Division would carry out its wildland mission elsewhere with a robust, but largely seasonal workforce augmented by the conservation camps, NDF helicopters and NDF dozers, as now. Where necessary, the Division would augment its workforce and resources with additional full-time firefighter/EMTs. The organization would be supported by adequate full-time staff to effectively train, lead, and supervise the organization's personnel and administer the program. NDF would essentially remain a local response agency funded by county taxes, with large fire support resources including conservation camp crews, aviation assets and some supervisory personnel funded by the State.

Under this alternative, NDF could also assume formalized responsibility (with commensurate funding and resources) for mobilizing large fire support to non-NDF districted counties and providing assistance or assuming incident command when large fires occur.

Option 3. Focus on being a Wildland Fire Agency, Provide Direct Protection in Existing NRS 473 Districts, but no All-Risk Services – Under this model, NDF would be a wildland fire agency without responsibility for all-risk emergency services. All non-wildfire responsibilities would devolve to the counties and their NRS 473 districts. The districts would provide structure fire protection, rescue, EMS and other non-wildfire services through existing local fire departments or by contracting with adjacent jurisdictions, as is currently done in the Douglas County portion of the SFFPD, where NDF contracts to the East Fork Fire and Paramedic District.

The Division would provide wildland fire protection services to existing NRS 473 districts (Carson City, Clark, Douglas, Elko, Storey, Washoe, and White Pine Counties). As in option 2, it would carry out its mission with a robust, but largely seasonal workforce augmented by the conservation camps, NDF helicopters and NDF dozers. The organization would be supported by adequate full-time staff to effectively train, lead, and supervise the organization's personnel and administer the program. The agency would essentially remain a local response agency funded by county taxes, with large fire support resources (including conservation camp crews, aviation assets and some supervisory personnel) funded by the State.

Under this alternative as in Option 2, NDF could also assume formalized responsibility (with commensurate funding and resources) for mobilizing large fire support to non-NDF

districted counties and providing assistance or assuming incident command when large fires occur.

Option 4. Focus on being a Wildland Fire Agency, Provide Direct Protection in New as well as Existing NRS 473 Districts – As in Option 3, NDF would be a wildland fire agency without responsibility for all-risk emergency services, and would provide wildland fire protection services to existing NRS 473 districts in Carson City, Clark, Douglas, Elko, Storey, Washoe, and White Pine Counties.

But in this option, in the interest of bringing NDF service to more of Nevada, counties could establish new NRS 473 fire protection districts where requested or directed. (Though it is unsatisfactory, NRS 473 is currently the only mechanism for creating new forest fire protection districts.)

NDF would carry out its responsibilities with a robust, but largely seasonal workforce as in the options above, supported by the same resources described above. The agency would essentially remain a local response agency funded by county taxes, with large fire support resources (including conservation camp crews, aviation assets and some supervisory personnel) funded by the State.

Under this alternative as in Options 2 and 3, NDF could also assume formalized responsibility (with commensurate funding and resources) for mobilizing large fire support to non-NDF districted counties and providing assistance or assuming incident command when large fires occur.

Option 5. Focus on being a Wildland Fire Agency, Provide Service to Existing 473 Districts Plus Additional Local Service by Contract Statewide Under New Authority – Under this model, the future role of NDF would be a wildland fire agency without responsibility for all-risk emergency services, as in Option 4 above. The Division would provide wildland fire protection services to existing NRS 473 districts in Carson City, Clark, Douglas, Elko, Storey, Washoe, and White Pine Counties, again as in Option 4.

However, under this alternative the state legislature would provide a new mechanism for forming fire protection districts and would authorize NDF to serve additional fire protection districts by contract. Under such an arrangement, NDF could provide levels of service ranging from coordination of local government forces to direct provision of full, seasonal wildland fire protection (but not all-risk), as deemed appropriate by the State

Forester Firewarden based on local conditions and the district's ability to fund operations. NDF would provide a defined service level in the contract service areas. The local government entity would pay the cost of the resources provided by NDF plus an administrative fee, with the local government retaining full accountability. The contract would specify the type and location of resources to be provided by NDF, and the level of service would depend on the contracting entity's desire and ability to pay.

Under the alternative described above, NDF could also assume formalized responsibility (with commensurate funding and resources) for mobilizing large fire support to non-NDF districted counties and providing assistance or assuming incident command when large fires occur.

Option 6. All-Risk Emergency Service Agency: Service Selected, Existing 473 Districts Plus New Authority to Provide Additional Local Service by Contract Statewide Under New Authority – In this model, the future role of NDF would be as a combined agency, retaining the seasonal wildland fire protection role in all existing NRS 473 districts, as well as continuing the transitional all-risk emergency service role in Clark, Elko, Eureka, and White Pine Counties until these responsibilities can be devolved to the counties. NDF would withdraw from all-risk emergency services in the urbanizing Sierra Front region, as in Option 2.

In addition, under this alternative, as in option 5, the state legislature would provide a new mechanism for fire protection district formation and authorize NDF to serve additional fire protection districts by contract. Under this arrangement, NDF could provide levels of service ranging from essential wildland fire protection to full-service, all-risk emergency service to fire protection districts established by counties statewide. Where NDF contracted to provide fire protection or other emergency services, the local government entity would pay the cost of the resources provided by NDF plus an administrative fee, with the local government entity retaining full accountability. The contract would specify the type and location of resources to be provided by NDF, and the standard of service would depend on the contracting entity's ability to pay.

The agency would essentially remain a local response agency funded by county taxes with large fire support resources, including conservation camp crews, aviation assets and some supervisory personnel funded by the state.

NDF would also be allowed to assume formal responsibility (with commensurate funding and resources) for mobilizing large fire support to non-NDF districted counties and providing assistance or assuming incident command when large fires occur.

Option 7. Focus on being a Wildland Fire Agency with Statewide Responsibility (County Co-op Model)

– In this model, as in option 7, NDF would be a wildland fire agency without responsibility for all-risk emergency services. The Division would provide wildland fire protection services statewide. It would continue to serve existing NRS 473 districts in Carson City, Clark, Douglas, Elko, Storey, Washoe and White Pine Counties with the same robust, but largely seasonal workforce described above, supported by the same resources described above, but would not establish new NRS 473 districts.

New to this option is NDF providing wildland fire protection services to all Nevada counties through a county cooperative assistance program. Counties would be required to maintain an initial attack capability specified by cooperative agreement, and NDF would provide some state equipment. When a fire situation exceeded county capabilities, NDF would provide assistance in the form of advisory personnel and resources from cooperating agencies and pay for fire fighting resources needed beyond those available in the county.

Option 8. Focus on being a Wildland Fire Agency with Statewide Responsibility (Direct Protection Model)

– In this model, NDF would mainly be a wildland fire agency, without responsibility for all-risk emergency services, and the Nevada legislature would authorize NDF to implement fully the Division's statutory authorities across the state. The Division would establish a presence in each county to directly provide statewide wildland fire protection on all lands not controlled by the federal government or lands within the exterior boundaries of any city or town, using NDF permanent and seasonal firefighters, augmented by NDF-associated volunteers where necessary. The Division would carry out its mission with a robust but largely seasonal workforce augmented by the conservation camps, NDF helicopters, and NDF dozers. The organization would be supported by adequate full-time staff to train, lead, and supervise effectively the organization's personnel and administer the program.

The agency would maintain local initial attack forces across the state, but would also retain sufficient flexibility to shift both initial attack and large fire support resources, funded by the state, including engines, conservation camp crews, aviation assets and

supervisory personnel as necessary to meet statewide fire needs. This option might include direct contracting with BLM or the Forest Service in counties where the private land base is small and the federal agency has an established fire protection presence.

Option 9. Focus on being a Wildland Fire Agency with All-Risk Transitional Role in Clark, Elko, Eureka, and White Pine Counties – In this model, NDF would be mainly a wildland fire agency, without responsibility for all-risk emergency services in much of Nevada, and would phase out the remaining all-risk services. The Division would retain its current transitional all-risk emergency service role in White Pine, Elko, Eureka, and Clark Counties until such time as those responsibilities could be devolved to those counties. NDF would not maintain all-risk emergency service responsibilities in any other county, nor in the urbanizing Sierra Forest Fire Protection District, as in Option 2, but would continue wildland fire protection there.

NDF would deliver most services with a robust but largely seasonal workforce augmented by the conservation camps, NDF helicopters, and NDF dozers. Where necessary, the Division would augment its workforce and resources with additional full-time firefighter/EMTs. The organization would be supported by adequate full-time staff to train, lead, and supervise effectively the organization's personnel and administer the program.

Option 10. Focus on being a Wildland Fire Agency with a State-wide, Comprehensive Fire Protection System – In this model, NDF would be a wildland fire management agency implementing a comprehensive fire protection system on a statewide basis. The state legislature would replace or amend NRS 473 with legislation that authorizes statewide protection of private lands outside municipalities, other established fire protection districts, or federal jurisdiction. The legislature would also fund the fire protection system either from the State General Fund or by statewide assessment of fees, as has been done in other western states. The state would determine a tax rate that adequately funds NDF statewide responsibilities and assess every Nevada county.

NDF along with its federal cooperators would employ the Fire Planning Analysis system (FPA) to determine the Division's most efficient operating level in its existing NRS 473 Districts and in each additional county or district.

NDF would continue its transitional all-risk emergency service role in Clark, Elko, Eureka, and White Pine Counties, but withdraw from providing or contracting all-risk

emergency service functions in Washoe, Storey, and Douglas Counties. (This would require a legislation change because they are legal fire protection districts.) The Division would plan for the inevitable sun setting of NDF's non-wildfire role in Clark County and for transitioning out of it as well.

The Division would carry out its responsibilities with a robust but largely seasonal workforce, augmented by the conservation camps, NDF helicopters, and dozers supported by adequate full-time staff to lead and administer the program effectively and supervise its field activities.

Also under this alternative, NDF would pursue a block exchange program with BLM or the Forest Service or both to exchange fire protection jurisdiction on specific lands with the intent of 'blocking-up' the jurisdiction into logical units.

Finally, forest fire protection districts would remain separate from county fire protection districts formed primarily to protect structures or to provide emergency medical service or other emergency services. The State of Nevada might achieve this aim by establishing a single, statewide forest fire protection district or separate districts by county.

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Recommended Strategy

As shown above, the NDF could move in many directions. This report describes 10 alternative organizations for the future. Considering the many findings of this study, the TriData project team advocates alternative organization number 10 described above. The following recommendations specifically pertain to the implementation of this preferred alternative.

Recommendation 82: Establish a comprehensive strategy and fire protection system for NDF that meets the modern needs of Nevada and its citizens. The strategy should include an organizational vision, as well as specific, measurable goals. Plan strategically, using an inclusive and collaborative process that involves the Division's employees, cooperators, and stakeholders. Document the NDF fire protection system plan, including service delivery levels, alternatives, and regional variations in policy. An action plan is needed that establishes time commitments and personnel assignments, and holds the Division accountable. Methods need to be established for monitoring and evaluating progress.

Recommendation 83: The primary role of NDF should be as a comprehensive wildland fire management agency. It should have a robust, but largely seasonal workforce,

augmented by the conservation camps, NDF helicopters, and dozers supported by adequate full-time staff to train, lead, and supervise effectively its personnel and administer the organization.

Recommendation 84: Employ the Fire Planning Analysis System (FPA) to determine the Division's "most efficient level" in the existing NRS 473 Districts. The USDA Forest Service and USDI BLM have recently received direction to complete joint analysis. The NDF should pursue joint analysis using FPA with its federal cooperators to determine where it should be providing service and with what resources.

Recommendation 85: Devolve all-risk emergency services to the counties in the rapidly urbanizing Sierra Front region. Capable local fire departments in this region are ready and willing to assume responsibilities. The all-risk mission is tangential to the Division's core mission.

Recommendation 86: Continue the NDF transitional all-risk emergency service role in Clark, Elko, Eureka, and White Pine Counties until such time as those responsibilities can be devolved to the counties. Plan for the "sun-setting" of the NDF non-wildfire role in Clark County. Establish trigger points for a planned future transition from this role in all counties .

Recommendation 87: Replace or amend NRS 473 with a statute or statutes authorizing the formation of fire protection districts that reflect modern operational conditions and realities. Seek alternatives to NRS 473 Fire Protection Districts. NRS 473 served its purpose for many years, but is unsatisfactory as a modern district formation and funding mechanism. Do not form new NRS 473 fire protection districts in their current form unless absolutely necessary.

The State of Nevada might employ one of two broad approaches:

1. Standardize the fees NDF charges to counties or fire protection districts, based on the level of service required or requested by the county. A formal cooperative agreement would establish NDF jurisdiction and a service level chosen from a schedule of standard service levels. The state would determine the cost of the requested services and the tax rate necessary to fund NDF responsibilities, recognizing that in many counties, adequate funding may require a subsidy from the State General Fund.
2. Replace or amend NRS 473 with legislation that authorizes statewide protection of private lands outside municipalities, other established fire protection districts, or federal jurisdiction. Such a system could be funded either from the State General Fund, by statewide assessment of fees, or by a combination of one of these sources and federal funding. The state would determine a tax rate that

adequately funds NDF statewide responsibilities and assesses every Nevada county.

In either case, the State must change its approach to funding the NDF fire program to one that adequately funds NDF fire management responsibilities and at least the infrastructure of a comprehensive fire protection system.

NDF wildland fire management should be supported by the State General Fund or by special assessment in part or total. There exists a compelling state interest that certain lands in Nevada, including watersheds and critical wildlife habitat, require a higher level of protection. Nevada's fire conditions and inclination for large, damaging wildfires demand this higher level of protection, particularly since large fires on these lands frequently overwhelm the local capabilities of any agency of local, state, or federal government.

Recommendation 88: Protect Nevada's natural resources, people and property from wildland fire by establishing forest fire protection districts separate from the county fire protection districts that were formed primarily to protect structures or provide EMS and rescue (NRS 474 districts). Under such a system, a forest fire protection district might be a higher level of protection from wildland fire, and overlay other fire protection districts. Conversely, an NRS 473 fire protection district might be considered a higher level of protection for life and property, and overlay a forest fire protection district.

This is not uncommon in other states. For example, in Montana, a rural fire district is established under a set of statutes that establish a fire department primarily for the purpose of structure fires, though they have some authority and responsibility to attend to all fires in their district. In forested zones, the primary driver of Montana's mission, citizens can petition to form a forest fire protection district to protect property from wildland fire, which is done under different statutes. The two types of districts frequently overlay one another, with recognition given to their unique purposes. Rural fire districts are paid for and funded by property taxes. Forest fire protection districts are not funded by property taxes, but rather by assessment of fees to the landowner. The state's official view is that the forest fire protection district is a level of protection that property owners have requested above and beyond basic fire protection for their homes, even though many forest fire protection districts predate the rural fire districts.

Nevada might achieve this aim either by establishing a single, statewide forest fire protection district or by establishing separate forest fire protection districts by county.

The legislature should be requested to pass statutes that vest authority for fire protection in the county or its legally formed fire protection districts, as is currently authorized by both NRS 473 and NRS 474. The legislature would authorize NDF to enter contracts to provide wildland fire protection services. The NDF would provide a standardized level of service ranging from coordination of local government forces to full seasonal wildland fire.

As an alternative, the legislature may choose to establish legislative authority under which jurisdiction rests with the NDF.

Recommendation 89: Working collaboratively with the Department of Emergency Management, establish NDF as the agency responsible for coordinating statewide mobilization of local government fire resources. The state's fire agencies have identified a critical need for this coordination and mobilization function, and NDF as a logical provider of this service.

Recommendation 90: NDF should consider pursuing a block exchange program with BLM and the Forest Service. NDF and BLM or the Forest Service would exchange fire protection jurisdiction on specific lands with the intent of "blocking-up" the jurisdiction into logical units (usually contiguous tracts instead of each serving a checkerboard pattern of non-contiguous areas). NDF would exchange lands they currently protect, but which could be better protected by BLM or the Forest Service, for lands currently protected by the federal agencies that might lend themselves better to NDF protection.

Recommendation 91: NDF should assume responsibility (with commensurate funding and resources) for mobilizing large fire support to non-NDF districted counties and providing assistance or assuming incident command when large fires occur.

XII. REPORT RECOMMENDATIONS

This report includes 91 recommendations pertaining to the NDF's fire program. Some are low cost or no cost, while some require considerable planning and resources.

Below is a summary list of all of the recommendations made. Most recommendations are described in further detail in the text. Next to each recommendation is the TriData project team's suggested priority, using the following ranking:

Urgent – Those recommendations that are critical to the delivery of the Division's mission and should be started immediately.

Important – Those recommendations that should be started as soon as possible but which are slightly less critical than those designated as "Urgent."

Needed – Changes that do not have to be made immediately but that should be made or started within the next year.

A few of the recommendations are interdependent, and stand alone. However, for the most part, these recommendations are highly interdependent. In other words, one recommendation supports or depends upon others. That is not to say that, in all cases, making improvements in one part of the Division is contingent on first making improvements in another. To implement these recommendations, the Division will necessarily undertake initiatives in various parts of the Fire Program simultaneously. Many of the recommendations represent a fine-tuning of existing practices. However, together, they should make a significant difference in the quality of the Division's fire program and the ability to manage that program going into the future.

Recommendation	Urgent	Important	Needed
IV. Interagency Roles and Responsibilities			
1. If the NDF is to maintain all-risk stations, it should provide at least two-person, 24-hour, seven day per week coverage on the all-risk engines assigned to those stations. Costs associated with this recommendation addressed elsewhere.		√	
2. Organize statewide and interstate mobilization of state and local fire department resources under a unified comprehensive mobilization system. Low cost or no cost. ³²			√
3. Keep NDF staff and the DEM Operations Manager co-located and with a direct relationship. Low cost or no cost.		√	
4. Universally implement unified command on multi-jurisdictional incidents as NDF standard operating procedure. Low cost or no cost.	√		
5. NDF should embrace the Sierra Front Wildfire Cooperators and participate even more in that innovative effort. Low cost or no cost.		√	
6. Use the SFWC cooperative model in other parts of Nevada where a sufficient “center of gravity” exists, e.g. southern Nevada (Clark County) and Elko County. Low cost or no cost.		√	
7. NDF should participate in the Humboldt County Wildfire Support Group. Low cost or no cost.		√	
8. Consider using a version of the Humboldt County Wildfire Support Group cooperative model in other Nevada counties where NDF may not be able to provide adequate staffing resources on its own. Cost: \$20,000/year			√

³² Recommendations labeled “low cost or no cost” can be employed using operational changes and the Division’s current resources.

Recommendation	Urgent	Important	Needed
9. Make an orderly transition out of the all-risk emergency service (non-wildland fire) mission in the Sierra Forest Fire Protection District. Cost: \$600,000 - \$700,000 (estimated cost to operate aggressive seasonal program)	√		
10. Retain NDF responsibility for wildland fire management, including wildland fire suppression, in the SFFPD as part of the Division's overall responsibilities as a natural resources agency. Cost: See Above	√		
11. Carson City should not take on wildland fire protection in its portion of SFFPD; NDF should continue in that role at least for the time being. Low cost or no cost.	√		
12. Begin to plan for an orderly transition out of the all-risk emergency service (i.e., the non-wildland fire mission) in the Mount Charleston Fire Protection District within a five-year period. Low cost or no cost.		√	
13. Retain NDF responsibility for wildland fire in the Mount Charleston Fire Protection District. Low cost or no cost.	√		
14. Any contracts with local jurisdictions for fire protection services should specify the level of service to be provided and performance indicators. Low cost or no cost.	√		
V. NDF Regions – Observations and Issues			
15. All fire departments in the Northern Region need to be systematically evaluated by the NDF state office. Low cost or no cost.	√		
16. Reconsider the current funding mechanisms in the Northern Region's three fire protection districts, with the intent of finding ways to more adequately fund the program.			

Recommendation	Urgent	Important	Needed
17. NDF staffing in the Northern Region needs to be increased. Cost: \$718,000/year \$374,000/year (Grade 33 x 5 positions) \$127,600/year (Grade 31 x 2 positions) \$155,000/year (Seasonal Extension) \$61,000/year (Grade 26 x 2 positions)	√		
18. Assign a seasonally staffed engine led by a career Captain to White Pine County. Cost: \$75,000/year + \$230,000 (one-time engine cost); cost of personnel included in Recommendation 17	√		
19. Address critical training capacity issues in the Northern Region. Low cost or no cost.	√		
20. Obtain the services of a communications technician in the Northern Region (either an NDF employee or contracted by NDF), as done in Elko County. Cost: \$5,000 - \$81,000/year, depending on choice made.	√		
21. Improve apparatus maintenance in the Northwest Region. Low cost or no cost.	√		
22. Build cooperative bridges to the Ely FD. Low cost or no cost.		√	
23. Provide information and training in White Pine County on the federal grant process. Low cost or no cost.	√		
24. Re-locate the NDF Battalion Chief to an office in the Town of Eureka. Low cost or no cost.	√		
25. Reconsider the current funding mechanisms in the Northern region's three fire protection districts, with the intent of finding ways to more adequately fund the program. Cost not yet determined. Requires additional study.	√		

Recommendation	Urgent	Important	Needed
26. Integrate NDF career and seasonal fire resources in the Western Region under a revised field organization chart. Low cost or no cost.		√	
27. Obtain state funding for the Southern Region's FMO position. Cost: \$91,300/year (Grade 37)			√
28. Hold high-level discussions between the State Office and Las Vegas Interagency Dispatch Center (LVIDC) Board of Directors to resolve the issue of NDF's future involvement in LVIDC. Low cost or no cost.		√	
29. Examine alternative funding mechanisms for the Southern Region's three counties remaining outside of NDF coverage (Lincoln, Esmeralda, and Nye). Low cost or no cost.		√	
30. Address the administrative staffing and training issues in the Southern Region office. Cost not yet determined. Requires additional study.			√
31. Improve maintenance support either by adding an additional mechanic for the region, contracting out, or providing additional maintenance support through the Southern Region's conservation camps. Cost: \$130,000/year (Grade 32 x 2 positions)			√
32. Staff the Southern Region so that fuels work may be done on private lands. Price not yet determined. Requires additional study.			√
33. Assure that the Southern Region's camps are able to reliably perform their critical fire support mission with adequate crew availability. Low cost or no cost.	√		
VI. Stakeholders' Views and Concerns			
34. NDF should review and revise as necessary all cooperative agreements with local government cooperators and maintain cooperative agreements with federal cooperators. Low cost or no cost.		√	

Recommendation	Urgent	Important	Needed
35. Enhance the NDF mitigation grant administration capability. Facilitate and speed-up the grant application and grant-making process. Low cost or no cost.		√	
36. Establish a formal human resources function in the NDF. Cost: \$105,000/year (Grade 41)	√		
37. Ensure that all employees are aware of the Division's health and wellness program and its intent. Low cost or no cost.			√
38. Contract to develop and implement an aggressive supervisory and leadership training curriculum in the NDF. Cost: \$20,000/year		√	
39. Develop a communications plan for NDF, and undertake immediate efforts to open better lines of communication between the NDF State Office and its field personnel. Low cost or no cost.	√		
VII. Fire Prevention and Mitigation			
40. Continue to expand the Division's efforts to become proactive in forest health and fuels management, and to strengthen prevention. Low cost or no cost.			√
41. Strengthen the agency's coordination of its fire prevention and mitigation at all levels of NDF statewide. Cost: \$86,000/year (Grade 36)			√
42. Develop a statewide plan for fire prevention and mitigation. Low cost or no cost.			√
43. Promote community-based fire safe councils and help them provide a consistent public education message. Low cost or no cost.		√	
44. Sustain the current initiative of the Division's resource management program staff to train fire program personnel on how to plan and implement thinning prescriptions. Cost: \$423,000/year (Grade 33 x 6 Positions)		√	

Recommendation	Urgent	Important	Needed
45. Have at least one full-time prevention specialist per region. Cost: \$152,000/year (Grade 33 x 2 Positions)			√
46. Continue the Division's use of non-fire alternatives (such as mowing and opportunistic seeding). Low cost or no cost.			√
VIII. Pre-Suppression, Dispatching, and Support			
47. Develop an adequate statewide fire apparatus and equipment maintenance capability either in-house or by contract. Cost: \$100,000 + (supplies, materials, tools, equipment, etc. - does not include personnel, which are addressed elsewhere)	√		
48. Establish a vehicle replacement program that assures a safe and reliable fleet of Conservation Camp Vehicles going into the future. Cost: \$1,000,000/year (8-9 vehicles/year)	√		
49. Decrease the Division's dependence on FEPP. Cost: \$100,000/year			√
50. Provide more training to NDF personnel assigned to interagency dispatch centers. Low cost or no cost.		√	
51. Develop NDF capabilities in the area of support dispatching, procurement and purchasing. Low cost or no cost.		√	
52. Correct communication disparities between NDF regions. Price not yet determined. Requires additional study.	√		
53. Work with cooperators to assure that interoperable radio communications systems are in place. Low cost or no cost.	√		
54. Engage in collaborative planning with NDF's local and federal cooperators regarding the 800 MHz radio system. Low cost or no cost.	√		

Recommendation	Urgent	Important	Needed
55. Undertake a system-wide assessment of NDF communications to determine (a) where there are system dead spots, (b) where there are inadequate numbers of radios, and (c) other communication system adequacy or reliability issues. Develop a plan for correcting system deficiencies. Low cost or no cost.	√		
56. The aviation plan should try to assure that NDF helicopters are located where they best support the NDF mission and its cooperators. Cost: \$5,000 - \$81,000/year		√	
57. Seek resources (pilots) to allow the second NDF helicopter to move up into initial attack-ready status when the first helicopter is dispatched. Low cost or no cost.			√
58. Seek resources that would enable NDF to employ a second, dedicated pilot for its fixed-wing aircraft. Cost: \$99,000/year (Grade 39)			√
59. Maintain NDF's system for staffing and managing its helicopters. The use of inmates is cost-effective. Some of the perceived problems might be remedied by involving the federal cooperators in the planning and management of the program. Low cost or no cost.	√		
60. Conduct further research into the performance of NDF helicopters at high elevations. Low or no Cost			√
61. The Conservation Camp Program should at a minimum remain at current levels, regardless of NDF's mission regarding fire initial attack or direct provision of fire protection services in fire protection districts. Low cost or no cost.	√		
62. Reorganize the Conservation Camp program within NDF to provide clearer, direct reporting lines of authority. Low cost or no cost.	√		
63. Develop and operate a single training camp. Price not yet determined. Requires additional study.		√	

Recommendation	Urgent	Important	Needed
64. Assign trainers and mechanics directly to the Conservation Camps. Low cost or no cost.			
65. Improve relevance and convenience of training for local government firefighters. Low cost or no cost.		√	
66. Assure appropriate application of work capacity tests to the NDF workforce. Low cost or no cost.	√		
67. Resolve physical fitness and Work Capacity Test application issues with local government forces. Low cost or no cost.		√	
68. Improve capacities to train conservation crew supervisors. Cost: \$80,000/year	√		
69. Improve and stabilize the NDF training budget. Cost: \$130,000/year		√	
70. Develop an effective system for issuing Incident Qualification Cards (red cards) to local government firefighters. Cost: \$5,000		√	
71. Consider whether the Division requires both a dedicated Training Officer and a dedicated Safety Officer. Low cost or no cost.			√
IX. Fire Suppression and First Responder Roles			
72. Revisit the rates paid to NDF associated volunteer fire departments with the intent of improving them. Price not yet determined. Requires additional study.		√	
73. Establish the NDF fire suppression program on a more stable, statewide base. Price not yet determined. Requires additional study.	√		

Recommendation	Urgent	Important	Needed
X. Revenue and Budget			
74. Establish a budget system that allocates NDF's funds to major program budgets (Fire, Resources, Administration, etc). Low cost or no cost.	√		
75. Define a base level fire program budget describing what NDF requires to fund its core fire protection program, excluding one-time project and pass-through money. Low cost or no cost.	√		
76. Develop a work planning and monitoring process that is linked to program-specific budgets. Low cost or no cost.		√	
77. Revenue produced by the Conservation Camps that exceeds what is needed to pay for the operation of the Conservation Camps should return to the Camp program (and not the State General Fund) and used for the purposes of off-setting the costs of vehicle replacement. Low cost or no cost.			√
78. Implement a system that captures all individual fire costs (both NDF and non-NDF) using the existing state accounting system or other means. Low cost or no cost.	√		
79. The Nevada Legislature should increase the NDF budget annually by \$15.4 million (52%) and provide \$880,000 in one-time costs for implementation in the next biennium.	√		
XI. Organizational Strategy for the Future			
80. Seek legislation that revises or replaces NRS 473 with legislation that clearly establishes NDF authority, responsibility, and jurisdiction in Nevada Revised Statutes. Low cost or no cost.	√		
81. Undertake immediate efforts to improve lines of communication between the state office and the Division's field personnel. Low cost or no cost.	√		

Recommendation	Urgent	Important	Needed
82. Establish a comprehensive strategy and fire protection system for NDF that meets the modern needs of Nevada and its citizens. Low cost or no cost.	√		
83. The primary role of NDF should be as a comprehensive wildland fire management agency. Low cost or no cost.	√		
84. Employ the Fire Planning Analysis System (FPA) to determine the Division's "most efficient level" in the existing NRS 473 Districts. Low cost or no cost.		√	
85. Devolve all-risk emergency services to the counties in the rapidly urbanizing Sierra Front region. Low cost or no cost.	√		
86. Continue the NDF transitional all-risk emergency service role in Clark, Elko, Eureka, and White Pine Counties until such time as those responsibilities can be devolved to the counties. Low cost or no cost.	√		
87. Replace or amend NRS 473 with a statute or statutes authorizing the formation of fire protection districts that reflect modern operational conditions and realities. Low cost or no cost.	√		
88. Protect Nevada's natural resources, people and property from wildland fire by establishing forest fire protection districts separate from the county fire protection districts that were formed primarily to protect structures or provide EMS and rescue (NRS 474 districts). Price not yet determined. Requires additional study.	√		
89. Working collaboratively with the Department of Emergency Management, establish NDF as the agency responsible for coordinating statewide mobilization of local government fire resources. Cost: \$78,000/year (Grade 36) \$13,000/year (operating expenses)		√	

Recommendation	Urgent	Important	Needed
90. NDF should consider pursuing a block exchange program with BLM and the Forest Service. Low cost or no cost.		√	
91. NDF should assume responsibility (with commensurate funding and resources) for mobilizing large fire support to non-NDF districted counties and providing assistance or assuming incident command when large fires occur. Cost: \$7,000,000/year (estimated \$6,000,000 supplemental above current level)		√	

Note: All personnel costs use “loaded” rates that include benefits, taxes, etc and include an additional 10% to account for training, uniforms, office costs, etc. (except where operating costs are specified.)